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ABSTRACT

After an explanation of the current organization of primary and secondary education in Sweden; the present state of adult education; the general forms, historical background, and organization of educational research and development work; and the four main sources of financing for education research and development, this document discusses research and development at the National Board of Education. The major purpose of this report is to present a general account of the direction and form of development work and of the actual research and development process, that is, how a project comes into being, how project work is organized, and how results are communicated to various interested parties. (Author/IRT)

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NBE R&D

Educational Research and Development at the National Swedish Board of Education

A summary compiled by

Bo Estmer

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Preface

For over ten years now, the National Board of Education has been engaged in research and development work to its field of competence. The results of this research and development are widely distributed via curricula, manuals, teaching materials and reports of various kinds. On the other hand no general account has been available of the direction and forms of development work and the actual research and development process, i.e. how a project comes into being, how project work is organized and how results are communicated to various interested parties. The purpose of the present publication is to remedy this deficiency. It has been compiled by Bo Estmer on the basis of documentation given by many colleagues, above all within the Bureau for Educational Research and Development Work (L 3).

Changes in the school system, in the structure of adult education and in the organization of the National Board of Education itself will in time render the content of this book out of date. The next edition would benefit a great deal if readers were to communicate their desires and viewpoints.

The National Swedish Board of Education

Primary and secondary education in Sweden

Great changes have taken place in Swedish education throughout the 20th century. The latest phase of reforms began in 1950 with a parliamentary decision to mount experiments with a nine-year 'comprehensive school'. Since then the many different types of school—elementary, continuation, state and municipal junior secondary and middle schools, girls' municipal school, state and municipal upper secondary or preuniversity schools—have been integrated into the nine-year comprehensive school, which is compulsory, and the integrated upper secondary school, which is voluntary. All the education of children and young persons from the age of 7 on up to 18 or 19 goes on in both these school types. The educational system is wholly operated and paid for at public expense.

At the same time as primary and secondary education has changed and grown in size and scope, the preschool system has been developing. Today, the preschools cater to all children for at least one year, in many cases for two or more years, before school attendance becomes compulsory.

The enlarged studying opportunities available to the younger generation have made it necessary to increase and systematize similar opportunities for the adults, especially those who could not gain access to more than limited education in the past. Since 1968 the municipalities have been running programs of secondary education for adults which offer the equivalent of completing the senior level of comprehensive school or integrated upper secondary school.

Although the comprehensive school, upper secondary school and secondary adult education are municipal school types, they come under the jurisdiction of a central government agency or civil service department, the National Board of Education (NBE).

A development equivalent to that which has marked primary and secondary education is now in process of being implemented for the postsecondary or university level.

The outer organizational changes applied to schooling in the municipalities are not matched to the same extent by changes in the school's inner work. However, a number of factors operating inside and outside the school have brought demands for sweeping changes in the schoolwork and in the relations between students and staff. Proposals for such changes have been put forward by a commission set up to study the school's inner work (SIA). The schools will be given greater freedom to dispose of available resources, to increase and improve programs of in-service training for staff, to give school principals a brand new type of professional education, etc.

Another important commission, *"The School, the State and the Municipalities"* (SSK), is looking into the whole question of dividing responsibilities between central government and local authorities where the school is concerned. More decisions than now must be taken at the local level. It is necessary to decentralize decision-making without impairing the criteria for uniformity and for equivalent standards of schooling in different parts of the country. SSK's work is expected to lead to decisions before the end of the 1970s.

The comprehensive compulsory school

Nine years of school attendance are compulsory in Sweden. This period begins with the autumn of the calendar year in which the student reaches the age of seven and concludes at the end of the academic year in which the student reaches the age of sixteen. However, by far most of the children will have gone to a preschool for one or more years before they reach compulsory attendance age. The whole of this period is spent in the comprehensive school, which is a nine-year municipal school run free of charge.

The comprehensive school is divided into three departmental levels, junior, middle and senior, each running for three academic years. Every academic year covers two terms, autumn and spring, separated by a Cristmas leave of about three weeks. Together, the two terms total forty weeks.

Every municipality has a comprehensive school. The junior and middle levels are usually divided into small school units consisting of one, two or three parallel classes for each grade. But there are also schools where two grades form one class with one teacher. The vast majority of children can live at home when enrolled in the junior and middle levels of comprehensive school. The senior level is centralized into larger units with usually at least three on up to five, six or more parallel classes of each grade. In most cases the senior-level children can also live at home. But in the sparsely settled regions of the north and west some children are accommodated during the workweek in school homes provided and paid for by the local authorities.

The children go to that school which is closest to home. All schools admit both boys and girls. But even though the children go to the nearest school, all municipalities have children who must be given transportation. As a rule the municipalities will stand the cost of this service for those children who have so far to go to school that they must ride. Regardless of how long the distance travelled, the children receive a hot-meal lunch every school day. In addition to school lunch and school transport, the municipalities pay for all textbooks and other educational aids used by the students. The students also receive health checkups and dental care free of charge. Child allowances are payable in respect of all children until they reach the age of sixteen. However, special study allowances or other study funds are not payable for comprehensive school attendance.

The comprehensive school in a municipality is administratively divided into headmaster areas. The number of such areas is regulated with reference to the number of children. One or more school units may be attached to each headmaster area. A headmaster is defined as the administrative and pedagogical principal in charge of a headmaster area. Second in command to the headmaster in most such areas is a director of studies, who acts as the headmaster's deputy and who chiefly deals with pedagogical matters.

The levels and grades that make up the comprehensive school structure are set out in table 1. The studies pursued at junior and middle levels cover grades 1—3 and 4—6, respectively (corresponding to what is called primary education in other countries) and those at the senior level cover grades 7—9 (lower secondary education).

Table 1. Structure of the comprehensive compulsory school

Junior level	
Grades 1—3:	20—30 hpw English, 2 hpw in grade 3
Middle level	
Grades 4—6:	34—35 hpw English, 2 hpw in grade 4, 4 hpw in grades 5 and 6
Senior level	
Grades 7—9:	35 hpw, of which 29—30 hours for instruction jointly given to all students and 5—6 hours for electives and freely chosen work. English, 3 hpw in each grade

hpw = hours per week

The goals set for compulsory education are to foster the student's all-round personal development and to prepare for gradually increasing involvement and social responsibility. Two main instruments are used to develop the student: first, the schedule-bound schoolwork; and second, different kinds of leisure activities between lessons and after lessons. School and home work together throughout the student's school life so as to create the most favorable opportunities for the child's development. It primarily rests with the home to see to it that the child turns up at school. The school bears chief responsibility for the day-to-day contacts between school and home.

Goals and guidelines governing the work of the comprehensive school are set forth in an official syllabus laid down in 1969 (Lgr 69). The syllabus also contains timetables for the various levels as well as goals, basic elements and general recommendations for the work to be done in different subjects and subject groups, and also for other activities in the school, e.g. student welfare, free activities, and educational-vocational guidance at the senior level.

Junior-level students learn Swedish, mathematics, local history and geography, religion, music and gymnastics, and—beginning with grade 3—English and handicraft (sloyd). Art (drawing) is added to the middle level as a special subject and the local history and geography course is devided into civics, history, geography and nature studies. At the senior level nature studies give way to biology, physics and chemistry. In grades 8 and 9 all students, boys and girls, take lessons in home economics and child care. All students also receive instruction in the different sloyds, textile work, woodworking and metalworking.

Every student at the junior and middle levels takes all the subjects on offer. Although there is no splitting up into separate courses, the studies are of course adapted to the qualifications of each and every student. Lgr 69 points out that individualizing the schoolwork and activating the students are compelling necessities. The bulk of the subjects on offer at the senior level is taken by all pupils, including a foreign language (English), but five-six lessons per week are devoted to elective subjects. The students will choose either a second foreign language (French or German) or one of the subjects, economics, art and technology. By far the most popular elective is a second foreign language, being chosen by nearly two-thirds of the students in grade 7. Of the remaining electives the one most in demand is technology.

In addition to the electives mentioned, the senior-level students may opt to take what is known as 'freely chosen work'. Although sports and different kinds of artistic activity have so far been the most demanded choices, many students will also opt for different kinds of political, social and human-care activities. Freely chosen work enables the students to get in touch with and involved in the work of voluntary associations and organizations both inside and outside the school.

The senior-level students make field trips to different workplaces, where they receive direct on-the-job orientation by working for brief periods outside the school, especially in occupations that are locally typical.

According to the Education Act and the syllabus guidelines, comprehensive school students shall belong to the same class to the utmost possible extent, i.e. to the same student and mate group, throughout the school period. The classes are to have the most diversified make-up possible as regards social and economic backgrounds of the students. No students are transferred on account of their scholastic performance. Streaming is never practised and it is becoming less and less common to organize special remedial classes for students with difficulties at school.

The table above set out the number of hours per week that students spend in class. A great many more hours are put in by the teachers. For instance, separate resources have been allocated to give special remedial instruction for part of the school day to students who have studying problems or adjustment difficulties. Such instruction is usually coordinated with other teaching so that the student gets to belong to his or her own class/student group. But separate

instruction groups may also be arranged, in particular for severely handicapped students, among them the visually impaired, the hard-of-hearing and the partially disabled. However, most students suffering from such handicaps are taught in ordinary classes even if they receive some back-up instruction.

Special 'resource hours' are also set aside to divide the students into smaller groups or to engage the services of assistant teachers. Such teachers are particularly brought in to handle the 'content' as opposed to the 'skill' subjects.

To a growing extent the members of school staff are forming teams around a specified group of students (one or more classes). The team consists of several class or subject teachers plus a remedial teacher. In addition, the team has access to school welfare officers, educational psychologists and school nurses; and, as the need arises, to the services of native-language teachers and teachers in Swedish for immigrant students. Every team undertakes to make sure that every student receives the kind of schooling that will serve the most useful purpose. The team also administers the special student welfare program as well as any resulting contacts with the student's home.

As noted above, the work of the comprehensive school is to be adapted to the individual student's qualifications and interests. Most of this work is done in the school. Homework is assigned no more than sporadically. No provsion is made for leaving examinations. Although tests enter into the schoolwork, no final tests are given. Final marks are awarded only in certain grades, chiefly at the senior level. Standardized tests are administered in certain subjects and grades to make it easier for teachers to judge the level of performance in their classes compared with the level in Sweden as a whole. On the other hand, standardized tests are not used to gauge individual scholastic performance. Otherwise equivalent standards of instruction for the whole country are promoted on the strength of educational adviser activity and different types of in-service training for staff.

Class enrollments may not exceed 25 students at the junior level or 30 students at the middle and senior levels. The normal procedure for sloyd and home economics is to divide the classes into two groups. Much of the instruction at junior level is given in a divided class. Due to the coordinated special instruction and the deployment of extra resource hours, the students will often work in smaller groups or have access to more than one teacher.

The integrated upper secondary school

This school is run by the local authorities and it builds directly on the comprehensive school. It is integrated as different courses of study are offered under one roof. The overarching goal for all education of young persons—the allround personal development of the individual pupil—thus holds for the secondary school as a whole. All students are to be given the opportunities to develop interest, ability and willingness to partake of the society's different activities. Moreover, all students must be able to form good study habits and to acquire skills and knowledge which can be made to underpin the pursuit of studies in higher education (the postsecondary school), at the same time as they receive some preparation for their future careers in the job world.

Unlike the comprehensive school the upper secondary school is divided into 'lines' with partly different study goals and different vocational thrusts. Preparation for advanced study dominates some lines, notably the three-year and four-year lines and the two-year theoretical lines, while preparation for careers preponderates in other lines, mainly the two-year vocationally oriented lines.

By comparison with the corresponding educational stage in most other Western European countries, the substance of Swedish upper secondary education aims more at what the students will be doing after they leave school. In large part the line-by-line

Table 2. Two-year, three-year and four-year lines in the upper secondary school, by sectors[1]

Arts and social subjects	Economics and Commercial subjects	Scientific and technical subjects
2-year lines	**2-year lines**	**2-year lines**
consumer line	distribution and clerical line	see below[4]
service and nursing line	economics line[3]	**3-year line[3]**
nursing line[2]	**3-year line[3]**	natural sciences line
social line[2]	economics line	**4-year line**
music line[3] (experimental)	**Special courses**	technical line
3-year lines[3]		**Special courses**
liberal arts line		
social sciences line		
Special courses		

[1] the arts-social subjects sector and the economics-commercial subjects sector tend to be coordinated, for instance through provision of a greater number of jointly taken subjects and courses.

[2] the lines are organized in whole or in part only by schools under the jurisdiction of county councils. This also holds for special courses in the fields of agriculture, forestry and medical-nursing-social work.

[3] mainly theoretical studies.

[4] clothing manufacturing line, building and construction line, electro-technical line, motor engineering line, agricultural line, food manufacturing line, processing techniques line, forestry line, woodwork line, workshop line, technical line.

division and the official syllabus have been designed to allow for what the postsecondary education on the one hand, and the job world on the other hand, have deemed to be cardinal skills and achievements. At the same time this school type is structured and subject-mattered to reflect the unanimous political conviction that every young individual is entitled to a basic education which offers free options for the future and does not lock the individuals into rigid compartments.

The lines in upper secondary school are grouped into three different sectors: (1) arts and social subjects; (2) economics and commercial subjects; (3) scientific and technical subjects. Each sector contains two-year and three-year lines and special courses, i.e. courses which have a more specialized study goal. One of the technical lines runs for four years, but may be terminated after the third year should the student intend to enroll in an institute of technology.

The division into sectors and lines is shown in the table below.

Each year the upper secondary schools are capable of admitting nearly 100 % of an annual cohort of 16-year-olds, totalling about 100,000 places. The largest capacity is to be found for the following lines in the order named: two-year social line (c. 9,500), three-year natural sciences line (c. 9,000), two-year distribution and clerical line (c. 7,500) and the two-year nursing line (c. 7,000). The places in grade 1 of the two-, three- and four-year lines break down as follows: about 45 % in the two-year vocational lines, about 35 % in the three- and four-year lines and about 20 % in the two-year theoretical lines. The number of places in the two-year vocational lines are tending to go up, while the two-year theoretical lines are going down. The most popular of all lines is the two-year nursing line.

Whereas the comprehensive school chiefly recruits its students from the local district, the upper secondary school often has several municipalities as its catchment area. Students with a long way to school qualify for a state travel allowance. Some study allow-

ances are payable to all students but special study funds may also be payable as needed. Going to school doesn't cost the student anything. Moreover, most municipalities provide educational aids free of charge and serve school lunches, sometimes also snacks between meals, without cost to the students.

School plant will vary anywhere in size from facilities for about 300 students up to 2,500. Most schools have between 500 and 1,200 students. Nowadays new schools are usually planned for at most 1,000 pupils. All the schools are co-ed institutions. Every unit of the upper secondary school is in the charge of a headmaster, who will be seconded by one or more directors of studies depending on the size of school and the line mix.

A large group of upper secondary schools will offer lines running for two, three and four years which differ in their vocational and theoretical orientation. These schools are called 'comprehensive' (i.e. fully integrated). Other schools chiefly feature two-year vocational lines or chiefly three-year and two-year theoretical lines. New upper secondary school plants are always planned as comprehensive units. No school has or is meant to have all the lines enumerated above.

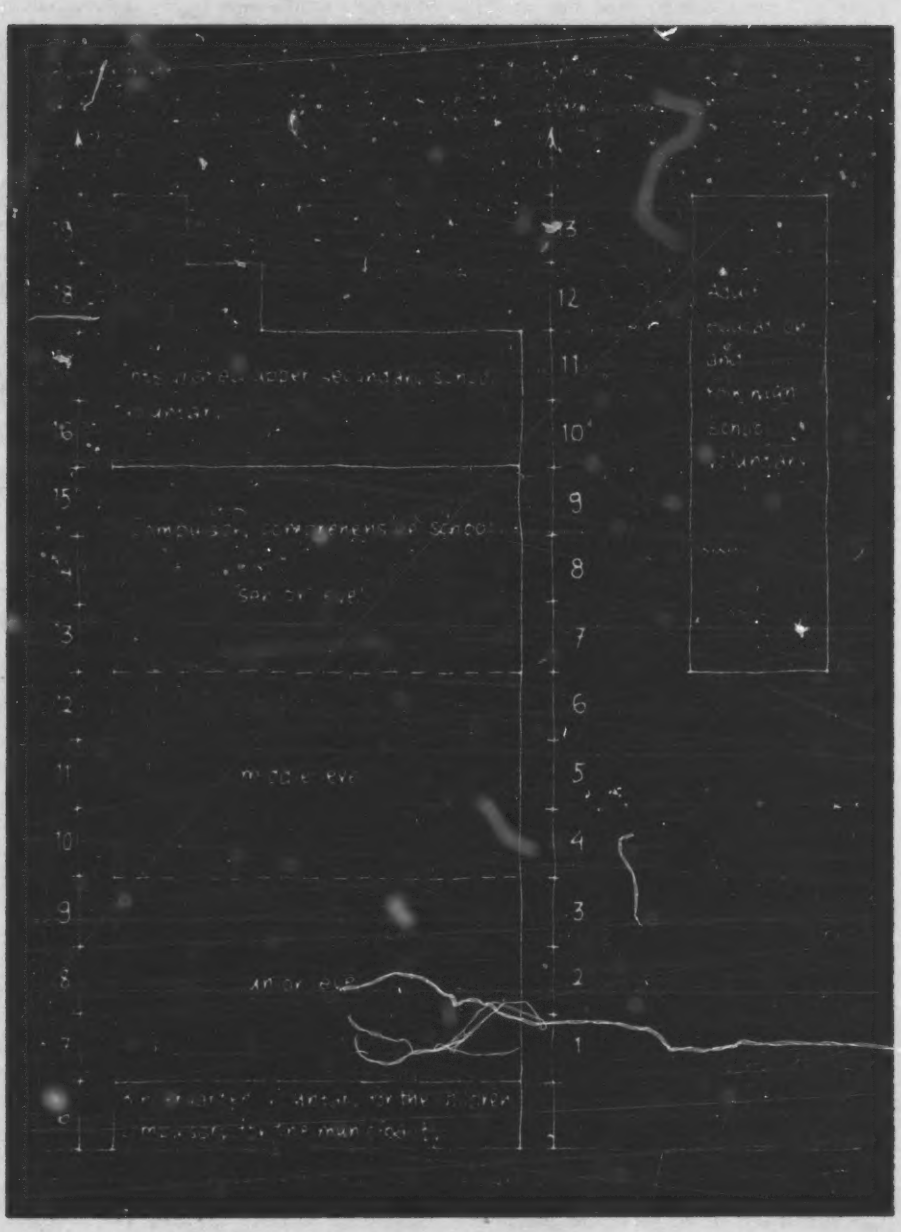
In principle, the students enjoy a free choice of line in the upper secondary school. But because the availability of places in the different lines is limited, the student cannot always enroll in the line that is his or her first choice. Whenever the number of applicants exceeds the supply of student places, admission preference will be accorded on the basis of marks earned in comprehensive school and other credits, e.g. experience of the job world. Academic years, terms and leaves are the same in upper secondary as in comprehensive school.

The official syllabus in force for the upper secondary school dates from 1970 (Lgy 70). It lays down goals and guidelines for the schoolwork, lists timetables and basic element, and gives general recommendations on the pursuit of studies line by line. In the second grade of most lines, and where appropriate in the third and fourth grades, there are several different branches and variants with partly varying contents and study goals. It follows that the upper secondary school is a highly differentiated school type. All lines, however, give courses in Swedish, civics or job-world orientation, gymnastics and, in many cases, English. In the vocationally oriented lines the students may choose electives from subjects in the two-year theoretical lines. The most common electives are English, mathematics and drawing. Those subjects that are common to all lines, together with the choice of electives in the vocational lines, make it possible for every upper secondary school student to acquire formal qualification for entry into higher education.

Like the comprehensive school, the upper secondary school does not confer a leaving examination (G.C.E. or the like). Tests are administered as an integral part of the schoolwork but no provision is made for end-of-term tests. The students are promoted each year to the next higher grade. Nonpromotion does not occur, but voluntary nonpromotion may be permitted. Special upper secondary school inspectors employed with the National Board of Education for different subjects will visit the schools to advise the teachers and to help them assess the ability level of their students, and thus ensure that the education provided in different schools achieves maximum equality of standards. In some subjects added provision is made for so-called central tests, i.e. tests which are designed and furnished with specimen rating scales by the National Board of Education.

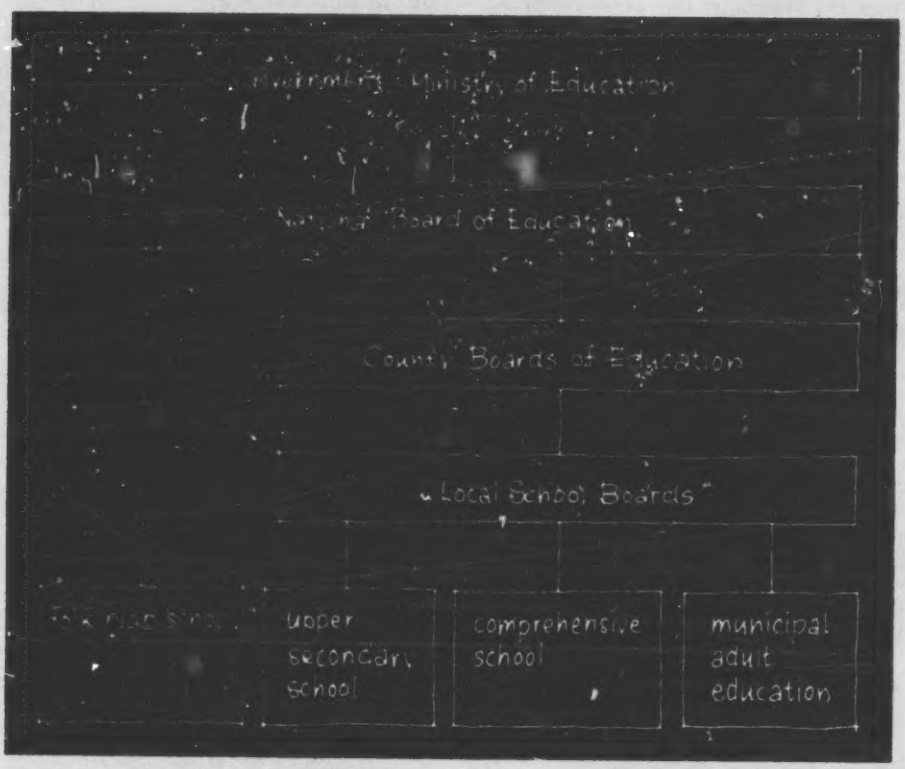
On an average close to 80 % of the 16-year-olds pass straight on from comprehensive to upper secondary school. Although some of the students break off their studies prematurely, the majority return to school after a while to complete the courses. A great many students who do not go directly to upper secondary upon leaving comprehensive do so after spending two or three years in the job world. The municipal school authorities try as far as possible to keep in touch with students who neither continue in upper secondary education nor obtain employment. Beginning with the next academic year such 'outreach activity' vill be enjoined

Figure 1



The school system in Sweden

Figure 2



The school administration in Sweden

upon the municipalities, i.e. they will be required to follow up the students for at least two years after they leave comprehensve school. And through collaboration between upper secondary schools and municipal programs of adult education, opportunities will be opened up for young persons who prefer to take shorter courses part-time, equivalent to the requirements of the upper secondary syllabus, instead of studying two, three or four years full-time.

Staff and staff training

Several different categories of personnel work in Swedish schools. Teachers comprise the largest of these groups. But it is symptomatic of the growing importance of the the other groups to speak nowadays of day-rooms and staff canteens instead of the earlier teachers' room and teachers' dining hall. It is likewise symptomatic of the trend towards working together in teams that in-service training—and to some extent the system of undergraduate education as well —is being coordinated for the different staff groups. It is more natural and proper to talk about in-service training for staff than in-service training for teachers.

The school principals, i.e. headmasters, directors of studies and the local superintendents of schools, are still fetched almost exclusively from the ranks of teachers. The same holds true of the school librarians and the administrative assistants who look after educational materials in the schools. Today, however, more and more of the responsibility for school libraries and educational materials tends to be put on librarians and supply officers whose educational background differs from that of the teachers. It is likely that tomorrow's school principals will be recruited also from the non-teacher ranks. In that case the provisions of the Schools Ordinance will have to be amended. Such a legal change is in the cards in spite of opposition from the teachers' trade unions.

All Swedish schools, moreover, employ administrative and auxiliary staff as exemplified by secretaries, accountants, janitors, kitchen personnel and building superintendents. All these employees are on the municipal payroll. In addition, all schools have access to school medical officers and school nurses.

The special program of student welfare and a large part of contacts with other official bodies in charge of child and youth matters are administered by school welfare officers and educational psychologists.

All upper secondary schools and comprehensive schools with senior levels employ so-called SYO functionaries, i.e. staff who are in charge of educational and vocational guidance and who organize field trips and practical training.

The teachers are class teachers for the greater part of the instruction given at the junior and middle levels of comprehensive school. However, the instruction in sloyd is always handled by specially trained subject teachers. This rule also holds to some extent for music and gymnastics. Subject teachers who work in senior level units are trained to give instruction in two or three subjects. But teachers in practical æsthetic subjects such as gymnastics, drawing, music, sloyd, home economics and infant care are usually trained in one subject only. In upper secondary school the subject teachers give instruction in theoretical subjects, different kinds of vocational subjects and practical-esthetic subjects.

The education of teachers is the province of teacher-training institutes (schools of education), as well as of universities, university level colleges and different kinds of special schools.

Since 1974 an official commission has been working on an overhaul of the teacher-education system. Its findings are expected to lead to greater uniformity and more cohesive education for the now disparate teacher categories. In all probability, greater weight will be attached than in the past to what the teachers know about the community at large, their experiences of the job world and their ability to work in teams.

The directors of the school system

Government agencies, interest organizations and coordinating bodies in the school sector

In Sweden the decisions of state in the school sector are not implemented by the government (Ministry of Education and Cultural Affairs) but by an autonomous civil service department, the National Board of Education (SÖ). According to the standing instructions laid down for the Board, its duties are chiefly of a service character. It is called upon to assist the local authorities in their work of shaping the school. For practical purposes the most essential tasks for the Board are perceived to be the preparation of annual budget estimates for the school system, the continuous revision of syllabuses, the in-service training of school staff, the allocation of funds and the issuing of directives for school research. Added mention must be made of the Board's importance for disseminating information about experiences gained in different parts of the country and about new decisions which are taken on the basis of empirical and investigative findings.

Subsumed under the National Board of Education are the county education boards, which are regional arms of central government in the school sector.

In the municipalities the responsibility for the school rests with the education committees—political bodies appointed by the municipal councils.

Serving as chief executive officer for the school system under the education committee in every municipality is a local superintendent of schools, who directs the work of the school secretariat and who plans and coordinates activities in the different headmaster areas and upper secondary schools.

The staff unions and other interest organizations exert strong influence over the schoolwork. This holds true not only for the organizations representing teachers and other staff but also for the various parent-teacher associations and student body councils. Two main vehicles are used for collaboration between the education committee and school administrators on the one hand and those who represent staff and students on the other hand: the school's joint management and employee council and its safety committee; and joint councils within every headmaster area and upper secondary school. Membership of the latter groups includes parents.

The public sector and the school

However, the state exercises major influence over the school system. The obligations of the municipalities and the rights of private citizens are regulated under the Education Act, which has been resolved by Parliament, and the Schools Ordinance, which is promulgated by the government. Resources and restrictions for the work to be done in comprehensive and upper secondary schools and its principal substances are specified in the syllabuses. In many cases both the Schools Ordinance and the syllabuses give detailed recommendations which are binding for the municipalities and for the school's employees. State subsidies amounting to nearly 100 % are payable towards the salaries of principals and teachers in both the school types. Salaries are determined by the outcome of negotiations between the staff unions and the National Collective Bargaining Office. Principals and teachers are appointed by government agencies.

Other than covering the salaries of teachers, state subsidies towards upper secondary education are also payable in respect of other designated staff and selected items of equipment. The state contributes towards the costs of building schools. No building project can get under way unless a state subsidy is voted to finance it.

This strong component of central planning and control seeks to achieve a uniform school system and an equivalent standard of schooling for the whole country. Wherever possible, children, young persons and adult students are to be offered the same opportunities regardless of whether they live

in a rich or poor municipality, in a dense urban settlement or in a sparsely settled region.

The municipalities underwrite that portion of the school-system costs which is not defrayed out of national revenues. Costs are shared between the two tiers of government as follows: for the comprehensive school, about 50/50; for the upper secondary school, the state's share of total costs is about 60 % and that of the municipalities about 40%. In all Swedish municipalities the school system represents the biggest item of local expenditure, amounting net to about 20 % of the municipal current budget. The state's costs on behalf of comprehensive, upper secondary and municipal adult education come to about 11 % of the national budget and currently account for 7.5 % of the gross national product.

In recent years there has been growing clamor for increased local influence over the school system. From all indications the work going on within SIA and SSK (the two official investigating commissions mentioned at the beginning of this chapter) will result in less detailed regulation by way of the Schools Ordinance and the syllabuses. Greater freedom will be allowed at the local level to shape the school system within limits defined by Parliament and government. However, the principles of uniform schooling and equivalent standards must be upheld. To a greater extent than in the past, the achievement of uniformity and good standards in the educational system will have to depend on the members of school staff. Probably the most important factor for the sustained development of the school system, however, will be the willingness of the municipalities to retain the volume of the financial resources they commit and to increase that volume as the need arises.

Adult education

Definition and aims

The term "*adult education*" is of recent origin in Sweden. It first came into widespread use in the 1960's. It then referred to the study circles and other activities of voluntary educational associations, and also to municipal adult schools, whose instruction was based on the curricula of the last three years of the nine-year compulsory school and of the various specializations and courses taught in the secondary schools. Since 1968, adult schools have been started by practically every municipality having its own secondary education system.

The concept of adult education undergoes continuous changes. It is hardly possible to give an all-inclusive or even satisfactory definition of the term. For example, it is not easy to draw a line between the higher education provided by universities and professional colleges and the other forms of education open to adults. In theory, higher education today includes all education for which completion of secondary school is a prerequisite. But a higher education programme often includes portions that can be studied in a secondary school. An example would be the purely vocational portions of 'combination courses' (which combine theoretical and practical-vocational studies). On the other hand types of adult courses not traditionally regarded as part of the 'higher' education system, may likewise include material studied in university or professional college courses. This applies, for instance, to portions of the advanced engineering and economics training provided by many employers. The more often secondary and post-secondary training is organized on a sandwich-course basis, i.e. alternating with periods of gainful employment, the more difficult it becomes to distinguish between so-called higher education and other forms of adult education. The same applies to portions of the social and behavioral science courses included in the training of trade union officials. At present, however, adult education can generally be said to include the following types of courses:

- study circles offered by voluntary educational associations
- municipal and State-run schools for adults
- folk high school courses of various types
- labor market training
- on-the-job training offered by national and local governments and private companies in collaboration with their employees
- the training programmes of the trade union confederations and their affiliated national unions
- courses offered on radio and television and through correspondence schools.

It is worth emphasizing that the above list is schematic and oversimplified. In reality, adult education is many-faceted and undergoes constant changes. This chapter will concentrate mainly on the first four categories of adult education. The last three will be described more briefly.

All the above categories of adult education, except some types of short study circles and private courses, generally receive subsidies from the national government.

Let us summarize the aims of Swedish adult education, as defined above. Adult education should provide older people who received little formal education in their youth—perhaps only six or seven years of

primary schooling—the opportunity to raise their level of general knowledge to that of today's young people, who have access to at least nine years of schooling, and most often eleven years or more. It should give the individual a change to receive vocational training, advanced training and re-training to meet the changing demands of the labour market. It should give each person a continually improving basis for participation in the political, social and cultural life of his country. Adult education must be made available in forms and under economic conditions that allow everyone to participate, regardless of working hours, family status, or place of residence.

During the past decade, adult education has come to include larger and larger areas. Its forms of distribution have changed and the economic conditions for studies have improved. But several different government-appointed investigative commissions are still working on these and related questions. One of the most important issues for the next few decades will be to find better ways of reaching the least educated, who have been assigned the highest priority in Swedish adult education.

The major trade union confederations and their affiliated unions have, for natural reasons, shown great interest in both form and contents of adult education. Several of the investigative commissions currently at work were appointed at the initiative of the trade unions.

Adult courses

Voluntary Educational Associations

By far the largest number of today's adult learners take part in the study circles organized by the local branches of Sweden's educational associations. The 200,000 study circles held each year attract over two million participants, slightly over half of which are women. This figure should be considered in relation to Sweden's total population of about eight million and its adult population (aged 20—65 of about five and a half million. These study circles are sponsored by ten different voluntary educational associations. The largest and oldest of these is ABF, the Workers' Educational Association, which has just over one-third of the total study circle hours qualifying for national government subsidies.

In the regulations for granting government subsidies to voluntary educational organizations, a study circle is defined as "*an informal group which meets for the common pursuit of well-planned studies of a subject or problem area which has previously been decided upon*". The group itself determines how its work is to be planned and carried out. The circle leader has certain coordinating and administrative tasks but does not function as a teacher in the ordinary sense. There are no formal requirements for circle leaders, although training in educational methods for study circles is available at Linköping School of Education. To be eligible for government subsidies, a study circle must have between five and twenty members. It must meet for at least four weeks. Each meeting may last no more than three class-hours. The subsidy is a certain amount per class-hour. It covers slightly more than 50 % of costs. The rest comes from tuition fees and municipal subsidies. The work of study circles is supplemented by programs of public lectures., which also receive government subsidies.

Three subject areas account for the bulk of study circle hours; æsthetic (arts) subjects, languages, and civics. Study circles in Swedish, English, mathematics, and social science at a level corresponding to grades 7—9 of the compulsory school have been given higher priority through a system of extra State subsidies. More than a third of all study circles fall into these high-priority categories. For many participants in high-priority circles, their studies represent the beginning of a recurring educational process of varying length.

There are also study circles at university level. So far the number of participants in such circles has been about 1 % of the total. A person who has completed an approved-curriculum university study circle may take

a special examination at a university and earn credit points there.

Immigrant education has grown rapidly in volume and has come to occupy an increasingly large proportion of total course offerings at the educational associations as well as of study programs offered by various enterprises on the labour market.

Municipal Adult Schools

The municipal adult schools have considerably fewer participants than do study circles, but nonetheless receive almost exactly as much in total government grants. There are two reasons for this. Students in the municipal adult schools carry a much heavier average course load than those in study circles, and national government subsidies pay the full cost of teachers plus certain other costs. There are no tuition fees.

The municipal adult schools are operated by the school boards of each local authority. They offer instruction in accordance with the uniform national curricula for the upper level of the compulsory school (grades 7—9) and for the various study lines and courses of the upper secondary school (2—4 years beginning with grade 10). Most courses are offered in the evening but some may be scheduled during the day. The student takes one, two or more subjects at a time; most students study part-time, but many day-time students go full-time. The purpose of these studies is often to acquire the actual skills and fulfill the formal prerequisites that will qualify a person for further studies at higher levels.

In recent years, the number of students in the municipal adult schools has been about 150,100 per year. Roughly one-third of these are studying at compulsory school level (grades 7—9), one-third in general courses at the secondary school level, and one-third in various types of vocational programs at the secondary level. The trend has been toward larger numbers in general courses and some decline in the numbers studying vocational subjects. This trend, though, is slowly changing.

English, mathematics, Swedish and German are the most popular subjects at compulsory school levels and in the general secondary school courses. Among vocational training programmes, the dominant subjects are industry and handicrafts, home technology, and commercial and office subjects.

The teachers in municipal adult schools have the same training as those who teach the same subjects in secondary schools. So far full-time teaching positions cannot be created within the adult schools. Generally a teacher divides his time between the ordinary secondary school and the municipal adult school. The Stockholm School of Education offers a special programme for those wishing to teach in municipal adult schools. The admission requirements are the same as for applicants to the secondary-teaching credential programs, i.e. the equivalent of a *fil. kand.* (roughly, Bachelor of Arts) degree.

All students at municipal adult schools have access to educational counseling if needed. Extra tutoring and financial aid can be provided under certain conditions. To receive study assistance grants and loans, a person must be studying full-time or have a course load so large that he has to take at least partial leave of absence from employment. Certain local governments also arrange childcare services for their adult students.

Study programmes equivalent to the municipal adult schools are available at two adult schools operated directly by the national government. One is at Norrköping and the other at Härnösand. These schools are intended for students who do not have access to adult education in their home towns. The courses take place either entirely on a correspondence basis or else by correspondence in combination with relatively short intensive courses at the school each term.

Public Libraries and Course Material Centers

Public libraries and the audio-visual or course material centers operated by local school districts play a vital role in the work of both the educational associations and

the municipal adult schools. The public libraries lend out books, magnetic tapes, and film strips to study circles and to private individuals. Course material centers tape-record educational broadcasts and lend out copies of them. The libraries arrange exhibitions, lectures, concerts and so on, which often serve as a supplement to study circles and other courses.

The Adult Education Councils

The adult education opportunities in any one place are often quite numerous and difficult for the individual to keep track of. The local branches of several different educational associations will offer study circles in a large variety of subjects. The municipal adult school will offer courses largely in the same fields. All these programmes need to be coordinated from their planning stages onward; the various course sponsors should agree on a division of labour and responsibilities. It is also necessary to set up a clearing system between applicants to various courses or study circles to ensure that the local adult education system operates as efficiently as possible and at the same time is as varied as possible. These coordinating functions are carried out by local adult education councils, with representatives from the various educational associations, the school board and the municipal adult school, the public library and often also from subsidygranting municipal authorities such as the local Cultural Affairs and Recreation Committees. The adult education councils also arrange discussions and other programmes of interest to participants in all types of adult courses.

The county educational associations provide a link between the various adult education organizations on the county level. They are responsible for coordinating educational planning in their own region. They often arrange lecture and concert tours, traveling exhibitions, etc. as supplements to local adult education programmes.

Folk High Schools

A specifically Scandinavian form of adult education is the folk high school, a type of boarding school. The first folk high schools were founded in the mid-19th century to provide rural young adults with increased opportunities for general education. Today the folk high schools are owned either by county councils or by trade unions, political parties, churches, temperance societies or other special-interest organizations.

The folk high schools offer 22—34 week winter courses in liberal arts subjects, which often provide the necessary prerequisites for higher studies elsewhere. The schools also offer short courses of varying lengths, focusing on specific subjects. There is no nationwide curriculum for folk high schools. Each school determines its own teaching programme within the framework of the Folk High School Code. In the winter courses, the only compulsory subject is music, but the first-year course ordinarily includes instruction in Swedish, literature, psychology and certain social studies and natural science subjects.

The teachers at the folk high schools either have the same training as teachers in the upper level of the compulsory school (grades 7—9), or in the secondary school, or else have completed the folk high school credential course at Linköping School of Education.

The folk high schools receive national government subsidies covering the entire salaries of teachers and headmasters as well as other expenses. Students pay no tuition fees, but they pay for their own room and board. They are eligible for government study assistance which covers most of these expenses.

Recent school reforms have brought about considerable changes in the patterns of recruitment to winter courses at folk high schools. The number of handicapped students has also greatly increased. A government commission is currently examining the role of the folk high schools. In recent years, the 115 schools have averaged about 35,000 students annually in long and short courses counted together.

Labour Market Training

The largest single recipient of national government subsidies to adult education is the labour market training system. This form of education is intended for the unemployed and people in danger of becoming unemployed. It is entirely government-sponsored and currently has almost as many students per year as the municipal adult schools.

Labour market training is a means of regulating the labour market and reducing unemployment. The training programmes are jointly planned by the National Labour Market Board (AMS), the various employer and employee organizations, and the National Board of Education. The size and location of training courses are decided by AMS, which also handles student admissions and the distribution of study grants.

Because these courses are intended for unemployed adults, the study grants are designed so they will cover the living costs of a single person or a family, as the case may be. In other words, these grants can be thought of as a wage, whose size is determined by the size of the person's family.

The NBE is responsible for the actual instruction, which takes place largely at so-called labour market training centers (AMU-centers). The courses take place all year round. In many of them, new students can be admitted at several points during the year. The courses vary in length from a few weeks to two years. Training is adjusted to the background and needs of the individual. Course materials are designed for individualized instruction. Standardized tests are used to some extent. The training programme often consists of a basic course aimed at providing qualifications for direct employment, and specialized vocational courses of a more advanced nature.

Most participants have a limited educational background. For this reason, the longer programmes include instruction in Swedish, English, social studies, mathematics, and natural sciences for a period equivalent to eight weeks.

Staff Training Within National and Local Government and Private Enterprise

As a rule, government authorities train their own employees. In certain agencies, for example the Customs Service, the Post Office and the Labour Market Administration, a complete vocational training course is provided. More advanced training in the form of short and long courses is available within most government agencies.

The county councils and larger municipal governments have extensive staff training programmes. Nursing staff in county hospitals and other countyoperated health care institutions receive a vocational training. Advanced courses are also available. The Swedish Association of Local Authorities and the Federation of County Councils each have training departments which sponsor courses for various staff categories and for elected municipal and county officials.

Most large private companies have training departments which carry out educational planning and sponsor courses. Employees of small and medium-sized firms are eligible for training courses sponsored by the various employer confederations and their affiliated trade associations.

A number of joint employer—employee bodies also sponsor training to meet the needs of working life. Among these are courses for industrial safety officers and for the members of works councils.

As a rule, the employer pays the cost of staff training and the participants pay no fee. Staff training programmes within local governments and private companies are not generally eligible for national government subsidies. An exception is on-the-job training of an elementary vocational nature sponsored by an employer in collaboration with the local secondary school, referred to as "*intramural company schools*".

Training Programmes Sponsored by Employee Organizations

Sweden's two largest employee organizations —the Confederation of Trade Unions (LO)

and the Central Organization of Salaried Employees (TCO) have extensive study programmes of their own. These programmes have several aims. They are designed to give union members a solid background in union matters and other social questions. They also supply trained union officials on local, regional and national levels.

Most courses are residential and last one or two weeks, but some last up to six months. The national government provides subsidies for these programs.

Besides LO and TCO, there are two smaller employee organizations in Sweden. These sponsor trade union courses too, but on a smaller scale.

Radio, Television and Correspondence Schools

The Swedish Broadcasting Corporation produces numerous adult education programs. Just as in the case of study circles and municipal adult schools, foreign-language courses predominate. A special Committee for Television and Radio in Education (TRU) designs programmes to meet the needs of adult education, secondary schools and higher education. As a rule, Swedish Broadcasting and TRU supplement their educational programmes with printed study material. The educational broadcasters also work in close collaboration with correspondence schools, municipal adult schools and public libraries.

Two correspondence schools. Hermods and Brevskolan, dominate the field of correspondence education in Sweden. Hermods designs courses primarily aimed at helping people fulfill the formal requirements for completion of compulsory-school, secondary-school and unversity-level courses. Brevskolan designs courses primarily aimed at meeting the needs of various special-interest organizations.

In recent years, the traditional type of correspondence course has increasingly been combined with other types of instruction, especially study circles and educational broadcasts. This type of combined course generally leads to more effective learning than pure correspondence courses.

New Target Groups in Adult Education

As recently as ten years ago, adult education was aimed primarily at people who took the initiative themselves in demanding educational opportunities. The past decade has brought major changes in the school system, marked by the lengthening of the compulsory school to nine years and the introduction of a comprehensive secondary school, to which about 80 % of all sixteen-year-olds continue directly from compulsory school or a few years after. As a result, more active recruitment methods must be used in order to awaken an interest among certain categories of adults for education. During the past few years, various experiments have been conducted in techniques of direct-contact recruitment.

The largest target group for these new recruitment campaigns consists of older people with six or seven years of primary schooling who have never enrolled for any further education. A good place to recruit such people is at their places of employment. Their educational needs can be met through study circle programs, municipal and national adult schools, educational broadcasts combined with correspondence courses or study circles, or in conjunction with labour market training and trade union courses. The task of organizing adult education programmes in rural areas has been eased through extra State subsidies and lowered minimum requirements as regards the number of students needed to start a class.

The mentally retarded and those with serious physical handicaps are other groups whose education was once often neglected. Special efforts have been made to open up both the regular school system and the various forms of adult education of the handicapped. The folk high schools have done particularly much to help these people. In

addition, educational broadcasts, labour market training and trade union courses have been designed with needs of handicapped people in mind.

Special legislation and agreements exist to ensure that foreign immigrants will receive adequate training in the Swedish language and orientation on Swedish society. Immigrant courses are aimed primarily at immigrants with regular employment, but they also attempt to reach other family members. The children of foreign immigrants are entitled to a certain amount of instruction in their native language at school, provided this language is spoken in their family or by relatives who often visit the family.

Courses based on the curriculum of the nine-year compulsory school are offered to inmates of Swedish prisons with little formal education or with a low level of general knowledge. Inmates who especially request it, can pursue studies at secondary or university levels. As a rule, these courses are arranged in collaboration with local school authorities. At certain prisons, individual inmates may also study on a full-time basis. One prison in Uppsala is exclusively intended for inmates who are pursuing studies.

Supervision, finance and coordination

Government Inspection of Adult Education

Study circle programmes, municipal adult schools and folk high schools are under the supervision of the National Board of Education. This means among other things that the NBE ensures that these courses operate in accordance with the general guidelines established by the Cabinet and the Parliament. It also implies that the national government is responsible for teacher training, and that adult education in the above-described forms is included in the areas of educational research and development work carried out with the help of government funds.

The labour market training programme is the result of direct collaboration between the Labour Market Board and the NBE. In other words, these two government agencies are jointly responsible for designing the programme, maintaining its quality and carrying out educational development work in this field.

As for most other kinds of adult education discussed in this chapter, the collaboration which occurs between private sponsors of courses and a local school board or educational association implies that these courses, too, indirectly come under national government supervision.

Financing Adult Education

Swedish compulsory schools, secondary schools, universities and professional colleges are financed entirely through public funds. They charge no tuition fees. There are only a few private schools, and their number is declining. Those pupils who continue their studies beyond the nine-year compulsory school receive a government study allowance, which is a continuation of the quarterly child allowance the government earlier paid to their parents. Students at university level receive government study funds in the form of outright grants and repayable study loans. It is natural that adult learners should be eligible in principle for the same tuition-free instruction and at least the same study fund benefits when taking the same types of courses as their younger counterparts.

Except for study circles, the types of adult education described in this chapter are in principle entirely free of charge, although in practice there may be some expenses for study materials. The tuition fees paid by participants in study circles are quite low.

At present the national government spends a little more than 10 % of its total educational budget on adult education. During the past decade, adult education has accounted for a rapidly increasing share of the national budget. More than half of the government funds appropriated for adult education are spent on the labour market

training programme, which is entirely government-financed. Local authority expenditures on adult education have also increased rapidly. Municipal governments pay about one-third of the costs of municipal adult schools and about the same proportion of the costs of study circles.

Municipal and county governments together employ almost one-sixth of Sweden's working population. Their staff training programmes are extensive and are aimed at all categories of employees. Thus, through direct payments, subsidy systems and financial assistance to students, the national, county and local governments pay the lion's share of the costs of adult education in Sweden. Other contributors to these costs include the popular movements, political and nonprofit organizations, employee organizations and private companies.

Coordination of Adult Education Programmes

An important prerequisite for the rapid growth of adult education in recent years has been collaboration between the various agencies and organizations involved. The employee organizations have assumed a leading role from the very start, as have the political parties. The political decisions on which the current adult education system is based were reached through consensus among the parties. Municipal governments and the educational associations have initiated a conscious division of labor on the local level. Through their national student union and its local branches, the adult learners themselves have become involved in designing the adult education system, recruiting new target groups, encouraging educational development work, and improving the financial aid system.

The very extensive government investigations of adult education that are currently under way are intended to result in further administrative, financial, and educational innovations. They should lead to more efficient methods of organizing adult courses and should give the individual student better economic conditions and better service facilities. In this way it should become possible for every adult to take part in a process of recurrent education that will help him perform better in his own occupation and in his role as a member of Swedish society.

Educational research and development work

Forms

Educational research and development comprises educational research at the behavioural science institutions of universities and schools of education, together with development work based on research findings, on decisions by the Government and Riksdag and on experience from other parts of the school system.

It is customary when talking about research and development to distinguish between three sectors: basic research, applied research and development. The Central Bureau of Statistics defines these three sectors as follows.

Basic research

The systematic and methotodical search for new knowledge and new ideas, with no specific application in view.

Applied research

The systematic and methotodical search for new knowledge and new ideas, with a particular application in view.

Development

The systematic utilization of research findings and scientific knowledge for the achievement of new products, new processes, new systems or substantial alterations to those already in existence.

There are various problems of demarcation between these three constituent sectors of research and development (R&D). One problem concerns the boundary between basic research and applied research. Educational research incorporates an element of basic research, but for the most part it is a form of applied research.

Basic research in this sector is supported by the Swedish Council for Social Science Research, among other bodies. The Tercentenary Fund of the Bank of Sweden also helps to finance social science research into educational questions. Schools derive benefit from these and all other research activities in the sector. Needless to say, close observation is maintained of research in other countries, and use is made of findings appropriate to Swedish education.

The boundary between research and development presents another problem of demarcation. For example, development work is included in the activities of research institutes. Research and development ought therefore to be regarded as an integral whole; there are no hard and fast boundaries between the two. Research is the systematic search for new knowledge which is then systematically utilized in development work.

The third problem of demarcation concerns commissioned research and free research. The research financed by the NBE is clearly commissioned research, but this does not imply that findings are ordered and determined in advance. The distinctive characteristic of commissioned research is instead that it comes within problem areas to which the school system and the NBE have given priority, added to which it is organized as far as possible in the form of projects of limited duration and with limited budgets.

Summing up, the research and development sponsored by the NBE include greater

or lesser elements of basic research, applied research, development and measures aimed at the production of material and the dissemination of results. This link-up between research and development in the school sector is one of the distinctive features of the NBE.

Historical background

The Swedish school system has formed the subject of major reforms during the past decade, and each of these reforms has been preceded by extensive research and development. The reverse also applies, however, in that it was the important school commissions of the 1940s and 1950s which laid the foundations of substantial R&D in this country.

The ultimate purpose of R&D by the NBE is to improve the scientific basis for the implementation of decisions of educational policy.

In other words, R&D activities are aimed at the improvement of schools and education, hence the focus on a continuous renewal of the planning, execution and evaluation of school activities. Here are some of the tasks which this work involves:

- New theories are formulated and a search is made for new knowledge and better applications of this knowledge to teaching, to teaching materials and to student development in the learning process.
- New educational methods are devised and a search is made for ways of improving educational organization.
- Curricula are drawn up and teaching materials drafted.
- Tests of various kinds are compiled for the assessment of educational results.

Research and development work in Sweden has come to centre on goals to a greater extent than in most other countries, due among other things to the close contacts between researchers and practitioners. Policy makers, administrators, teachers and researchers co-operate in Government Commissions, in curricular work and in similar contexts. In this way researchers have come to show greater consideration for social and economic aspects—hence the greater emphasis on goals.

Organization

The Riksdag is the supreme deliberative body concerning research and development in Sweden. It is the Riksdag which determines the overriding aims of R&D and specifies the fields of research where work is most urgently needed. But the Riksdag has yet to hold a comprehensive debate on priorities in Swedish R&D. Moreover, overall planning and the more long-term strategy for future developments are still unclear.

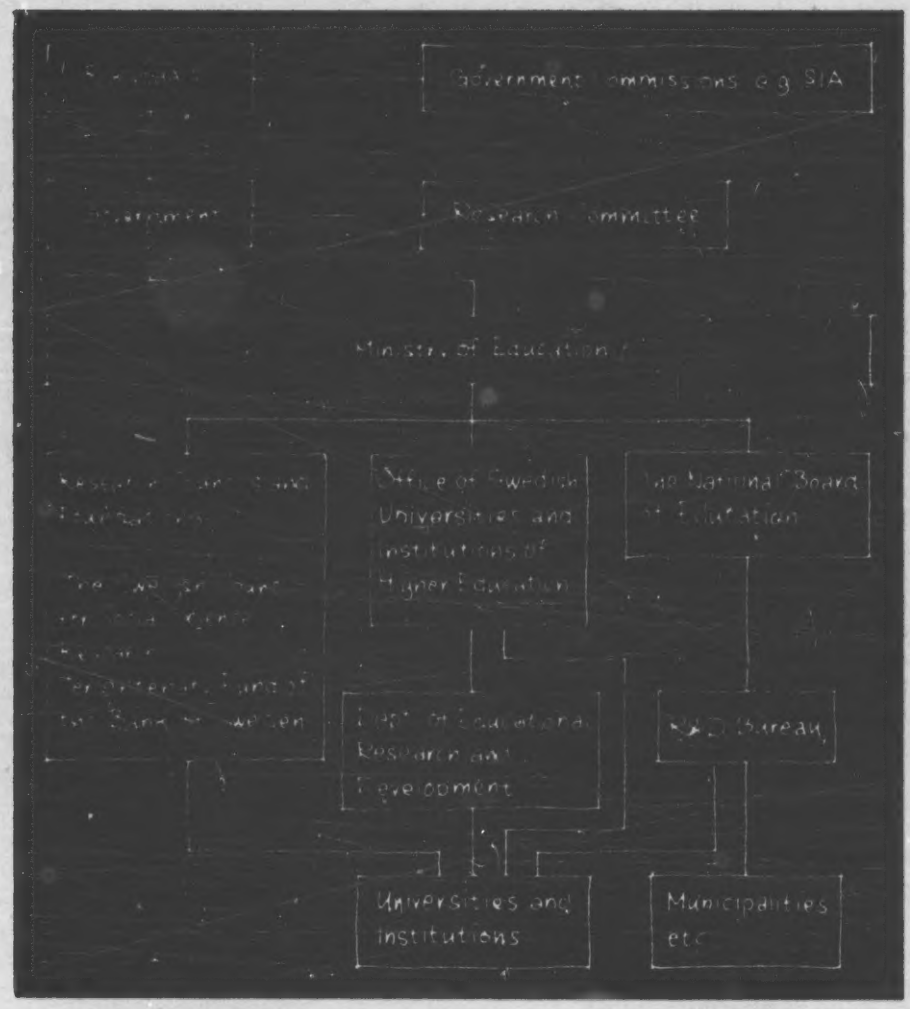
Unlike many other countries, Sweden does not have a special Government department for research. Instead the State allocation for R&D is apportioned between different Ministries. Responsibility for educational R&D is vested in the Ministry of Education and Cultural Affairs, with the result that this work is directly geared to the main body of educational policy.

A Research Committee has existed since 1962. This Committee is a consultative body on matters concerning priorities, and it is chaired by the Prime Minister. It also includes representatives of research, commerce and industry.

The **Research Councils** play an important part in national research policy. There are seven of these councils, covering atomic research, research in agriculture and forestry, building research, arts research, social science research, medical research and research in the natural sciences. Their task is to initiate and support research in important areas.

Educational R&D work is done by many different bodies and commissioned by a variety of sponsors. Most of it, however, is commissioned and financed by the NBE and the Office of the Chancellor of the Swedish Universities, the Swedish Council for Social

Figure 3


Government commissions e.g. SIA
Research committee
Ministry of Education
Office of Swedish Universities and Institutions of Higher Education
The National Board of Education
Dept. of Educational Research and Development
R & D Bureau
Universities and institutions
Municipalities etc

Goals. Priorities. Allocations

The general outlines of Swedish research policy are determined by the Riksdag and the Ministries. Overriding questions concerning research are dealt with by the Research Committee. The appropriation is distributed via the Ministry of Education to research councils and foundations, to the Office of the Chancellor of the Swedish Universities and to the National Board of Education.

Allocations

This is where decisions are taken concerning the concrete research projects to be supported and awarded allocations. Both the Office of the Chancellor of the Swedish Universities and the NBE have special units responsible for the administration of research allocations.

Research projects

Most actual research takes place at the institutes of education of universities and schools of education.

The organization of educational research and development

Science Research and the Tercentenary Fund of the Bank of Sweden. State committees and Government Commissions also engage in educational research, as for example in the case of SIA, the Commission on the Internal Work of Schools. A minor fraction of research is paid for by the Board for Technical Development, municipal authorities and private firms.

The scope and direction of the NBE's allocations for educational R&D in the school sector are laid down in the national budget, which is debated by the Riksdag every January. The budget proposals submitted to the Riksdag are the result of political and economic deliberations within the various Ministries. The estimates put forward by the Ministries are adjusted and summarized by the Ministry of Finance, which is responsible for the drafting of the actual budget proposals submitted to the Riksdag. The Ministerial estimates in turn are based on the requests put forward by administrative boards and other authorities for the coming fiscal year. The NBE's requests are submitted to the Ministry of Education every September, but new projects for which money is awarded cannot be started until July of the following year.

The big four — a presentation

Expenditure on research and development in the Swedish education sector for the fiscal year 1974/75 totalled approximately Skr 46m. (To this must be added research carried out by undergraduates and postgraduate students, research carried out by holders of research appointments and development work paid for by municipal authorities and educational publishers.) This expenditure was mainly shared by four institutions: the Tercentenary Fund of the Bank of Sweden, the Swedish Council for Social Science Research, the National Board of Universities and Colleges and the NBE. Between 60 and 70 per cent of the money involved were administered by the NBE.

The breakdown of educational R&D expenditure between the big four was as shown in table 3.

Sometimes R&D shades off into information and in-service training measures. The above figures do not include money specially allocated for the latter purposes.

Table 3. Allocations for educational R&D, 1974/75

Institution/Authority	Skr million
NBE	26.6
Office of the Chancellor of the Swedish Universities	11.2
Sw. Council for Social Science Research	5.8
Tercentenary Fund of the Bank of Sweden	2.4
	46.0

The Bank of Sweden Tercentenary Fund

The Bank of Sweden Tercentenary Fund was set up following a resolution by the 1962 Riksdag. Its purpose is the promotion of scientific research which can lead to a greater knowledge of the effects of social, economic and technical change on society and on the individual. To date the Fund has disbursed more than Skr 160m. Most of this money has gone to research in the social sciences.

Psychology and pedagogics account for about half the total expenditure on the social sciences. Thus Skr 2.4m. were allotted for research projects of this kind in 1974.

The largest individual project to have been supported by the Fund is the "*International Project for the Evaluation of Educational Achievement*" (IEA), which involves a comparison of teaching and achievement in a number of school sectors in 19 countries all over the world.

Table 4. The Bank of Sweden Tercentenary Fund: grants awarded in the psychiogy/pedagogics sector, 1970—1974 (calendar years). Skr 1,000

current value of money	fixed value of money (base year = 1970)
1970 1 451	1 451
1971 2 731	2 540
1972 1 964	1 728
1973 1 829	1 500
1974 2 466	1 800

The Swedish Council for Social Science Research

The Swedish Council for Social Science Research was founded in 1947. The Council finances research at university institutions, but it has also introduced special research appointments in particular subjects. The Council had about Skr 12m. at its disposal for the fiscal year 1974/75. Skr 5.8m. of this amount was devoted to research in psychology/education.

The educational research financed by the Council accounts for the bulk of basic research in Swedish educational R&D. Research is divided into three sectors: general education, experimental education and social education. These three sectors accommodate roughly equal numbers of projects —about twenty—and account for roughly equal amounts of expenditure.

The Swedish Council for Social Science Research supports a different type of research activity from that supported by the Bank of Sweden Tercentenary Fund, viz smaller projects, supplementary analyses, synthesis, the codification of previous research and suchlike activities.

Table 5. The Swedish Council for Social Science Research: grants awarded in the psychology/pedagogics sector, 1970/71—1974/75. Skr 1,000

	current value of money	fixed value of money (base = Dec 1970)
1970/71	3 466	3 466
1971/72	3 994	3 714
1972/73	4 481	3 943
1973/74	4 729	3 878
1974/75	5 312	3 878

Table 6. The National Board of Universities and Colleges: R&D grants in the post-secondary sector, 1970/71—1975/76, excluding personnel education grants. Skr 1,000

	current value of money	fixed value of money (base = Dec 1970)
1970/71	4 077	4 077
1971/72	6 032	5 610
1972/73	7 627	6 712
1973/74	7 915	6 490
1974/75	9 045	6 603
1975/76	10 125	6 885*

* = forecast

The National Board of Universities and Colleges

The National Board of Universities and Colleges has a special Department of Educational Research and Development, established in 1969. This Department carries out research material to that part of the education sector covered by the NBUC, and it also initiates and follows up research commissioned by the NBUC from scientific institutions.

For research and development purposes during the fiscal year 1975/76, the Office has at its disposal Skr 10.1m. (excluding funds for personnel education). There are two main forms of R&D: research projects and institutionally based development pro-

Table 7. The National Board of Education: allocation for educational R&D in the school system, 1970/71—1975/76. Skr 1,000

	current value of money	fixed value of money (base = Dec 1970)
1970/71	18 150	18 150
1971/72	20 590	19 148
1972/73	22 975	20 218
1973/74	22 625	18 552
1974/75	26 625	19 436
1975/76	31 982	21 747*
1976/77	33 750	

* = forecast

jects in the form of organizational experiments.

Research project activities, which cost Skr 1.9m., are an auxiliary function of long-term planning and short-term planning and development work. Research projects are divided into four programmes: Higher education and society—structure and relations; The organization and working patterns of teaching; Evaluation: function and result control; R&D organization development.

Expenditure on development projects totalt Skr 6.95m. These projects focus on various matters connected with educational planning and teaching and are aimed at short-term, concrete alterations to planning and teaching. They take the form of institutionally based or jointly sponsored development projects.

The National Board of Education

The NBE plans and co-ordinates about 60 per cent of educational R&D in Sweden. Administrative responsibility is vested in the R&D Division L 3).

The annual budget appropriation for educational R&D is divided between various projects within the NBE and outside it. The appropriation for the fiscal year 1975/76 was Skr 32.0m.

Educational R&D concerns all school levels and is divided into five programmes, viz one programme each for pre-school education, elementary schools, upper secondary education, adult education and teacher education, and a programme for matters common to several educational sectors. Under each programme, research and development are conducted with reference to teaching (curricular development), students, teaching materials and evaluation (the assessment of results).

During the short time it has existed so far, educational R&D work has yielded many valuable results. But even if it is found to be useful, unreasonable demands are sometimes made upon its usefulness. For research—as is sometimes demanded—to be able to solve discipline problems generally is as unreasonable as expecting other kinds of research to eliminate road accidents, disease or unemployment.

Research and development work covers a longer perspective of time than the solution of acute and unforeseen problems. Among other things its purpose is to shed light on the possibilities of attaining certain aims within the framework of given rules and conditions. R&D, therefore, is of great importance to all strategic planning.

We thus find something of an antithesis between more long-term goals and the demands sometimes made for research findings that are immediately useful and can be directly applied to everyday school life. But the antithesis of these two approaches is more apparent than real: activities which fail to supply basic knowledge concerning education and its conditions cannot be useful either.

In other words, R&D is liable to lose its point if it is narrowly concentrated on everyday emergencies. This does not preclude concentration on such top priority educational issues as the problems of low achievers or the education of the handicapped.

The true effects of R&D as a whole are probably greater than its perceived effects. The results of this work lead to the revision of statutes and curricula and new arrangements with regard to premises and teaching materials. In matters of this kind, research findings have played an important though inconspicuous part. The effects of R&D are more long-term than short-term and more indirect than direct. Often too they have to be regarded as parts of combined development measures.

Research and development at the National Board of Education

Purpose

The main purpose of the R&D work done by the NBE is to improve schools and education by means of a continuous renewal of planning, execution and evaluation. The following means are employed to this end.

- The development of new knowledge and theories concerning the teaching process, teaching materials, student development etc.
- The development of methods for the analysis of the goals, organization, resources and results of education.
- The development of teaching methods and of methods for the improvement of educational organization.
- The production of prototypes, e.g. goal documents, evaluation instruments and teaching materials.
- The provision of greater numbers of competent personnel and the reinforcement of development capacity.

Historical background

R&D work at the NBE began in connection with the major investigations of school policy mounted in recent decades.

The 1940 School Commission engaged the services of the country's professors of education for a scientific investigation of the differentiation question. Similar research contacts were established by the 1946 and 1957 School Commissions. These Commissions also carried out comprehensive explorations and systematic analyses of closely defined problem areas.

Several more recent committees have worked on similar lines. Committee research has continued, although its share of total educational research has declined.

The experiments organized in the 1950s concerning the new nine-year elementary school were also very important to research and development. Although these activities comprised little in the way of controlled experiments, they were the precursors of present day R&D.

Educational R&D is unique insofar as it is not solely aimed at adjustment to enacted reforms; it also queries the forms and content of the established school system. The resolution of principle adopted by the Riksdag in 1950 for the prolongation of compulsory schooling and the replacement of a selective by an optional school system led, for instance, during the 1950s and 1960s to a new external school structure: the parallel school system was replaced by a comprehensive school system.

However, this did not immediately solve the long series of educational problems in which the process of reorganization resulted, nor did it solve certain fundamental problems that had existed previously. These questions did not enter a new stage of development until the commencement of new R&D work in the 1960s. Experience of different kinds and from different schools has been added to curricular work and transmitted to teachers and other school

Table 8. NBE R&D allocations in relation to total expenditure in the school sector. (Skr millions, fixed values of money in parenthesis. Base year = 1970)

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
Total expenditure	5 294	5 571 (5 181)	6 496 (5 718)	6 845 (5 613)	7 287 (5 320)	8 122 (5 523)*
R&D allocations	18.2	20.6 (19.1)	23.0 (20.2)	22.6 (18.6)	26.6 (19.4)	32.0 (21.7)
Percentage	0.34	0.37	0.35	0.33	0.37	0.40

* = forecast

personnel categories. The class as a self-evident teaching group has been called into question and replaced with variable group arrangements. The teacher has sometimes been replaced by various types of teaching teams which have also included technicians and teacher assistants. The textbook has been replaced by systems comprising student booklets, teacher booklets, recorded and pictorial material and so on.

Table 9. Relative distribution of State education expenditure within the area covered by NBE allocations

R&D	0.4
Teacher education, inc. in-service training	3.7
Elementary school	59.3
Upper secondary school	21.1
Adult education, inc. popular education	11.0
Miscellaneous	4.5
	100.0

Finance

R&D started on a modest scale. About Skr 2m. of the NBE appropriation went to the first projects in 1962/63. Today (fiscal year 1975/76) there are 190 projects in progress at the NBE and at the behavioural science institutions of universities and schools of education, and R&D expenditure totals Skr 31.9m.

In 1967 the NBE set itself the target of allotting one per cent of national expenditure in school sector to educational R&D. Given the present day school budget of about Skr 8,000m., this would mean Skr 80m. for R&D. In fact the current R&D allocation is just over Skr 30m., which is about 0.4 per cent.

Table 8 illustrates the development of the R&D allocation in relation to the entire school sector during the past six years. Table 9 shows the percentage distribution of school expenditure in the NBE sector.

Organization

The experimental nine-yar school introduced during the 1950s was centrally directed by a special research department at the NBE. This department was divided into three sections—one for general questions connected with experimental activities at junior and middle levels, a second for lines of study and theoretical subjects at senior level, together with the higher schools, and a third section covering theoretical and practical vocational studies, preparatory vocational training and practical junior secondary schools.

This experimental department was wound up in 1962 with the final introduction of the new elementary school. It was reorganized as a division of educational R&D and placed under the Teacher Training Department of the NBE. In 1965 a test construction section was added and in 1969 the Division took over a teaching materials section

Figure 4

Organization of the NBE

which had been set up previously at the NBE.

Since 1st July 1972 the NBE has been organized into five departments; see figure 4. Each department is headed by a head of department, and each division within a department is headed by a head of division. Some divisions are subdivided into sections headed by assistant heads of division.

Division L 3 thus comes under the Teacher Training Department. The Division administers about 75 per cent of the NBE allocation for educational development work in the school system. The experimental department set up in 1951 had only about ten members. In 1975 there were more than fifty persons employed in Division L 3.

The main functions of the different sections of Division L 3 can be very briefly summarized as follows.

- *R&D Planning Section* (L 3:1). This is a co-ordinating section. At present (fiscal year 1975/76) it is responsible for the co-ordination of 107 internal and 86 external projects. It is also responsible for information and documentation concerning all educational research, and it is the secretariat of the Research Advisory Committee.

Figure 5

* = Transferred to the National Swedish Board of Universities and Colleges since October 1st 1976

Organization of the NBE department L

- *Teaching Materials Development Section* (L 3:2). This section is concerned with three main questions regarding teaching materials.

  How are teaching materials to be designed in order for teaching to be conducted in keeping with the underlying intentions of the curriculum?

  What measures are needed in order to facilitate the rational and efficient use of existing teaching materials?

  What measures are needed to remedy deficiencies in the supply of teaching materials?

- *Evaluation Section* (L 3:3). This section compiles tests, most of which measure students' knowledge and skills in school subjects. Test construction work is undertaken in collaboration with practising teachers, subject experts at schools of education and other working units at the NBE. Certain tests are carried out within the framework of projects at the institutions of schools of education.

A certain amount of development work is also done as part of internal projects by other working units at the NBE or by experts and working parties appointed by

Table 10. Project expenditure per working unit, 1975/76. Skr 1,000

Working unit	Expenditure
S 1	1 994
S 2	1 198
S 3	1 410
S 4	566
S 5	284
S 6	989
P 1	1 021
P 3	132
V 1	1 146
V 2	1 070
L 1	925
L 3:1*	624
L 3:2	1 800
	13 159

* = Projects later allotted to other units and institutions. Planning funds.

those units. It is education and universities, primarily for *curricular follow-up* and the investigation of related questions concerning placement, school environment and school buildings. Work is often directed by the NBE educational advisers.

Internal projects account for just under half the total NBE development appropriation. Table 10 shows the allocation of R&D resources between the various working units of the NBE for the fiscal year 1975/76.

The tasks of school research

Generally speaking, educational R&D is to be regarded as an auxiliary measure. It provides the general school system with the support needed for the attainment of predefined and accepted goals. Research projects are carefully selected to this end, i.e. with a view to attaining the goals of the education system and building up preparedness for future changes in the education system.

Division L 3 is centrally responsible for the planning, observation and reporting of development work. Its duties in this connection include the following.

- Inventory, collection and classification of R&D requirements and the assessment of incoming project proposals in the light of existing long-term plans for the education system.
- The drafting of budget requests for a three-year period, on the basis of R&D needs.
- The allocation of funds to projects.
- The collection and collation of annual reports on individual projects and summarizing reports on completed projects. The compilation of an annual report on activities generally.

The research programme

Programme sectors

R&D activities are conducted in the form of projects for which the Riksdag makes an annual appropriation without any detailed specifications. On the other hand the budget estimates put forward by the NBE every year are fairly detailed.

"The increasingly important part destined to be played by pre-school education demands an intensification of development work concerning pre-school methods, working procedures and organization."

(Budget proposals 1970)

"Vocational education, however, has attracted relatively little attention hitherto on the part of researchers. To me it is natural that the greater emphasis now being placed on the importance of vocational education should be parallelled by research into the pedagogical problems posed by that education, so that in this as in other respects, schools will be able to provide good instruction adapted to the different circumstances of individual students."

(Budget proposals 1972)

"... Under the appropriation for educational development work within the school system, there is a very urgent need for resources to be made available for educational development in the sphere of adult education."

(Govt. Bill 1972:26)

"The school debate of the past few years has shown that one of the most pressing problems in schools today concerns the means whereby the necessary individualization of subject matter is to be accomplished. In this context, special attention must be devoted to the situation of underachievers."

(Budget proposals 1972)

The resolutions adopted by the Riksdag usually contain a brief indication of problem areas to which special attention should be paid. The emphasis in recent years has been on the need for investigations of matters concerning pre-school education and adult pedagogics. Problems of vocational education and the support needed by underachievers have also been specially referred to. Immigrant education is a large new problem area.

The educational development appropriation now follows a scheme of programmes referring to the various target areas of NBE activities.

Programmes

A R&D for various educational sectors

1. Pre-school
2. Elementary school
3. Upper secondary school
4. Adult education
5. Teacher education
6. Joint research and development work

B Planning, follow-up and information etc. The NBE Research Advisory Committee.

Each programme is subdivided to the requisite extent as follows:

a) goals
b) teaching
c) organization and school environment
d) students
e) teaching materials
f) evaluation.

Table 11. Educational development work in the school system. Allocations for the fiscal year 1975/76

1. Educational development work in the school system concerning:	
a) pre-school education	1 766 000
b) elementary school	6 140 000
c) upper secondary school	5 351 000
d) adult education	5 676 000
e) teacher education	2 965 000
2. Joint research and development work	7 399 000
3. Planning, follow-up, information etc. Research Advisory Committee	2 560 000
4. Grants to educational publications	105 000
	31 982 000

Table 12. Allocations between internal/external projects for the fiscal year 1975/76, by research programmes. Skr 1,000

Programme	Internal projects	External projects	Total
Pre-school	161	1 605	1 766
Elementary school	1 848	4 292	6 140
Upper sec. school	3 922	1 429	5 351
Adult education	2 297	3 379	5 676
Teacher education	960	2 025	2 985
Joint R&D	3 971	3 428	7 399
	13 159	16 158	29 317
Information, follow-up etc.			2 560
Educational publications			105
			31 982

Many R&D questions and projects involve several educational sectors, e.g. study and vocational guidance questions, pupil welfare and many other topics. Questions and projects of this kind are grouped together in the joint development programme.

If we disregard item B, which is primarily to be considered as a residual item for the development appropriation, six groups remain. Tables 11 and 12 show the statistics of these six programmes for the fiscal year 1975/76.

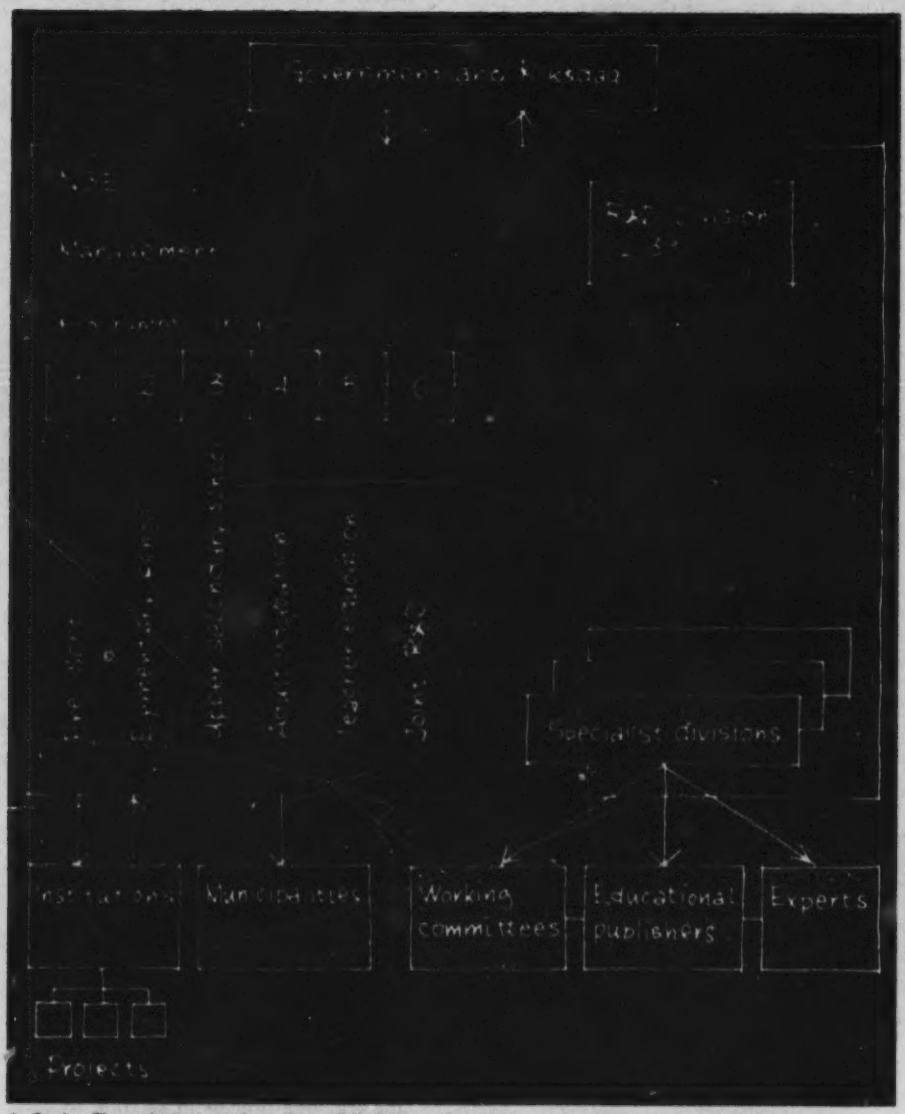
Programme groups

Each of the six programmes is covered by a special programme group at the NBE secretariat. A programme group is a drafting body for the co-ordination and planning

The programme groups—duties and composition

Duties	Composition
Drafting of R&D goals within the programme. Suggestion of projects for the programme, within the given frames. Drafting of budget estimate for the programme. Compilation of annual report on the programme and presentation of any proposals occasioned by the report.	Heads of the following units: 1. **Pre-school:** S1, L1 2. **Elementary school:** S1, S6 3. **Upper secondary school:** S2, S3, S4, S5 4. **Adult education:** V1, V2, V3 5. **Teacher education:** 6. **Joint R&D:** S1—S6, V1—V3, L1, L2, P1, P3, A2:3, Us All programme groups include the head of Division L3.

Figure 6



A Goals. The principal goals of R&D at the NBE are determined by the Government and Riksdag. The purpose of R&D is to support long-term planning and the implementation of school reforms.

B Programmes. The NBE is responsible for its programmes. The general guidelines for these programmes are laid down by the Management and the Education Committee. There are five programmes for the educational sectors and one for joint R&D. The R&D Division, L 3, serves as the drafting, co-ordinating and managing body in each programme group.

C Execution. Most R&D work is conducted outside the NBE, although the management of projects can be retained by the NBE or entrusted to research institutions. Research is based on the educational research departments of educational research at the schools of education. Development work of various kinds is done by municipal authorities and other organizations (for experimental educational areas, see Chap. 12), by teaching teams and by experts of various kinds.

Organizational structure of R&D at the NBE

of R&D work within the various programmes. The programme groups include representatives of the divisions concerned, together with personnel from Division L 3.

Discussion papers are compiled on the basis, among other things, of current evaluations and statements of school policy as well as instructions from the Riksdag and Government, and they are successively revised within the programme groups. These discussion papers describe important problems connected with developments in that part of the education system coming within the NBE sphere of competence. The information they provide is given close consideration when proposals for new R&D projects are drawn up by NBE working units and research institutions.

R&D requirements are continuously inventoried by NBE working units, through the medium of curricular follow-up, educational consultants, upper secondary school inspectors and analytical conferences and by other means.

The main organizational structure of R&D at the NBE is illustrated in figure 6.

Programme goals

The goals of the various programmes included in the R&D work done by the NBE are as follows:

Pre-school

- to increase knowledge concerning features of general child development during the pre-school stage which are of relevance to development during school age
- in this connection, to devote particular attention to children in special need of support and stimulus
- to provide documentation for a definition of goals, content and methods of collaboration between pre-school education and the junior level of elementary school with a view to promoting the continuous development of the child.

Elementary school

- to improve the state of knowledge concerning the realization of the goals of the curriculum through teaching and learning, with special reference to the interests and aptitudes of the students.
- to improve the state of knowledge concerning the organization and environment of elementary school, by analysing different school environments together with the circumstances of student learning and the effects of instruction in alternative forms of organization
- to improve the state of knowledge concerning the environmental conditions in school and outside it which favour the personal and social development of the students, and in the light of this knowledge to develop and test measures of instruction and student welfare, particularly for students suffering from various kinds of handicaps
- acting on the basis provided by the elementary school curriculum, to plan, construct and evaluate models and prototypes of teaching materials and to develop models and procedures for the selection of teaching materials and the utilization of the total teaching material resources of schools
- to evaluate central fields of elementary school activity and to develop new aids for the evaluation of student development, study motivation and study achievement.

Upper secondary school

- to improve basic knowledge concerning the teaching process in relation to student aptitudes and various frame factors, to analyse goal achievement in teaching and, in the light of this analysis, to modify or redesign syllabi and courses of studies
- to develop and test organizational measures to assist and reform upper secondary school activities, not least in sparsely populated areas

- to improve the state of knowledge concerning the environmental circumstances, both in school and outside it, and including contacts with working life, which favour the emotional and social development of the student, and accordingly to develop and test measures of instruction and student welfare, particularly for students suffering from handicaps of various kinds
- to analyse teaching material requirements for different upper secondary school subjects, and to develop, test and evaluate teaching materials
- to evaluate upper secondary instruction in various sectors.

Adult education

- to improve the documentation forming the basis of decisions concerning the future direction of development work in various forms of adult education
- to develop and test teaching methods designed above all to make studies more feasible for persons with little or no experience of such activities
- to develop and test recruitment and study guidance measures in various sectors of adult education, with particular regard to the economic, social and psychological situation of under-educated adults
- to improve the documentation underlying decisions concerning organisation and also concerning practical and economic problems connected with adult education
- to support and encourage the basic and in-service training of teachers and leaders for adult education
- to define teaching material requirements and encourage the production of teaching materials, as well as developing and testing models of media combinations and models of different forms of adult study
- to develop methods and aids for the evaluation of different forms of adult education in relation to the commitment of society and of adult students themselves, and also for the exploration of practical and economic problems.

Teacher education

- to define the goals and content of different types of teacher education
- to improve teaching methods and resource utilization in teacher education
- to prepare and evaluate changes in the organization of teacher education
- to promote the development of teaching materials for teacher education
- to carry out a qualitative evaluation of the basic and in-service training of teachers.

Joint R&D

- to improve the documentation underlying decisions concerning goals and planning and to improve planning methods
- to broaden knowledge concerning teaching and learning processes and to encuorage a continuous review of education by supporting and leading experimental activities at local level
- to test organizational alternatives in the teaching context
- to develop and evaluate the physical surroundings of education
- to evaluate and develop the role of education in the personal development of the participants, to test models, aids and methods for student welfare work in youth and adult education, and to explore problems and devise practical arrangements concerning handicapped groups and minorities
- to develop teaching materials by analysing needs, developing prototypes and carrying out organizational studies and evaluations
- to develop and test models and methods for the evaluation of teaching and educational activities.

The evolution of a project

As stated earlier, for the fiscal year 1975/76 the NBE had 190 R&D projects in progress. These activities accounted for a total R&D expenditure of Skr 32m.

The immediate management of the great majority of these projects is located within the NBE, particularly as regards development work on such matters as curricula, teaching materials and forms of organization for the education system. The work is done by experts outside the NBE, above all by teachers and teacher trainers.

Most internal projects have been shorter and less extensive than those which have been delegated to research institutions. So far they have also been faster and cheaper than external projects, and they have yielded more in the way of immediately applicable results.

On the other hand the outside research institutions are often in a better position than the NBE to establish direct contacts between R&D and teacher training, in-service teacher training and local development projects. In its long-term planning of project activities, therefore, the NBE tries to increase the number of commissioned projects and reduce the number of projects under its own immediate supervision.

Table 13. Internal and external project expenditure, fiscal year 1975/76. Skr 1,000

	Expenditure	No. projects
Internal projects	13 159	107
External projects	16 158	86
Planning, follow-up etc.	2 665	
	31 982	193

Planning documentation

Ever since 1962, when the NBE first received money for research purposes, efforts have been made to assemble the widest possible documentation for assessments of R&D priorities. To begin with, most suggestions regarding R&D project came from the educational research institutions of universities and schools of education. Gradually, however, an increasing proportion of suggestions has come from working units within the NBE itself.

R&D has also attracted growing interest outside the NBE and the institutions. The NBE also asks teachers, students, parents and educational publishers what problems they think R&D work should focus on.

Very briefly, here are some of the more common types of documentation on which the NBE bases its planning of R&D activities concerning youth education, adult education and teacher education.

Statements by the Government and Riksdag

The annual budget proposals include statements on the general course of developments in the school sector and the content and organization of R&D. Other Bills to the Riksdag, reports by Standing Committees of the Riksdag and publications by the Riksdag also contain guidelines and goal definitions with a bearing on the planning of R&D.

Direct information from schools

Schools are visited by upper secondary school inspectors and educational advisers from the NBE. These officers supply continuous spoken and written information which is summarized annually. Direct information

is also obtained from schools by means of questionnaires of various kinds and through the circulation of legislative proposals, committee reports etc. for comment. For example, a questionnaire is sent every year to school management as part of the project entitled *"Curricular follow-up in elementary schools"*; see the chapter on curricular follow-up.

Projects

Inventories of problems are also carried out in projects of various kinds. Broadly speaking, interim and final reports from all projects help to amplify and define school problems.

County school boards and personnel organizations

School inspectors and in-service training consultants furnish the NBE with information on current problems in schools. Personnel and student organizations communicate their viewpoints to the NBE by making representations and by taking part in the circulation process referred to above.

Area surveys

Surveys are compiled of the results and proposals concerning the direction of subsequent work to which R&D has led in particular areas. Ingvar Werdelin's survey of mathematics research (1973) and Jan Häggkvist's survey on drop-outs (1974) are two such accounts.

Symposia and conferences

These occasions provide meeting points for researchers and practitioners in different subjects: adult pedagogics, languages, junior level teaching, media selection and CCTV in teacher training are among the topics which have previously been covered.

Inventories via the NBE working units

Division L 3 conducts an annual inquiry among the oher NBE Divisions concerning particular problem areas in which R&D should be planned.

Research institution project plans for budget requests

R&D needs are commented on by researchers and research institutions in reports on current projects, during work on area surveys and at conferences and symposia. More detailed project proposals are included in the budget requests submitted to the NBE at the beginning of each calendar year. Among other things these requests contain extensive background descriptions and explanations indicating the development needs which the project is to cater for.

Decision-making bodies

Thus various inventories of needs are undertaken before the NBE decides which projects it is prepared to support. Each project then has a fair amount of history behind it by the time it is entered in the statistics of the school research section of Division L 3.

The history of a project between its conception and its inception, either at a research institution somewhere or at one of the working units within the NBE, can be outlined as follows.

The idea behind the research project can come from one of the following quarters:

- institutions of the behavioural sciences
- student, parental and teacher organizations
- county school boards
- teachers, school management (= headmasters and directors of studies), educational publishers
- working units at the NBE.

Ideas which develop into suggested research projects are sent to Division L 3, where they are collated by the school research section, which gets in touch with eligible **research or working groups** to discuss possibilities.

Proposals are then distributed to the various programme groups and summarized in project lists. The scientific merits of the proposals are also assessed by at a **planning committee** of three professors of education.

Body	Duties	Composition
Institutions at schools of education, universities etc.	Co-operate with NBE working units in drawing up project plans prior to budget requests and allocations. Draw up annual reports on current projects and final reports summarizing concluded projects. Conduct and report on R&D.	Project groups
Planning committee	Makes recommendations concerning the scientific interest and quality of research projects	Three researchers appointed by other research leaders
L 3	Drafting body for co-ordination and planning	About 10 officers
Research Advisory Committee	Makes recommendations concerning the direction to be taken by R&D. Comments on proposals regarding budget requests and allocations.	Chairman and eight members with five deputy members appointed by the Government.
Board of the NBE	Draws up goals, guidelines and budget request frames	Director General (Chairman). Ten members nominated by the Government. Rapporteur: Head of Div. L 3.
Budget requests meeting	Indicates general goals. Finalizes proposed volume and frames of budget requests. Finalizes budget requests.	Director General, Heads of Dept. Rapporteur: Head of Div. L 3.
Allocation meeting	Finalizes proposals concerning volume and frames of programme allocations. Decides on allocations for projects.	Director General, Heads of Dept. Rapporteur: Head of Div. L 3.
Working units of the NBE (Divisions and Sections)	Draw up project plans in connection with budget requests and allocations. Draw up annual reports on current projects and final reports summarizing concluded projects. Carry out and report R&D.	NBE personnel (inc. educational advisers, upper secondary school inspectors and experts).

The priorities drawn up by the committee are then considered and processed by the various programme groups (see page 38). Work at programme level is governed by the general goals defined by the Government and Riksdag. The groups then draw up the final list of projects on which the budget requests will be based.

The **Research Advisory Committee** also takes part in this stage of the decision-

making process. This Committee was set up following a resolution by the Riksdag in 1971 in response to demands for a more detailed and comprehensive assessment of the recent reforms of the school system. The task of the Committee is to act as an advisory body within the NBE on matters concerning R&D. The Committee also has decision-making powers in certain matters determined by the Board of the NBE.

The Government appoint nine members to represent the Riksdag, municipalities and students as well as researchers and personnel in education. Division L 3 acts as the Committee's secretariat.

Let us assume that a proposal was put forward in the autumn of 1974. If the proposal is approved by the NBE, i.e. by the **Management** and by the Board, which makes the final decision, it will be processed in greater detail by the institution where it originated. It will then also be included in the NBE's budget requests for 1976/77. (Concerning the details of budget request procedure, see p. 46.)

After budget requests have been submitted to the Ministry of Education during the autumn, activities for the coming year are prepared by the award of planning funds to important new projects which are included in the budget requests and which it is expected will be able to start. Planning is complete by the end of the year.

The Government presents its budget proposals to the Riksdag at the beginning of January 1976, and the results of the budget requests are publicized. This marks the beginning of the next stage in the evolution of the project from conception to the commencement of research.

A Riksdag resolution based on the budget proposals is followed by the **allocation of funds.** The NBE Management indicates the frames within which the various programme groups have to operate when planning activities for the fiscal year 1976/77. Throughout this planning phase, joint planning activities are conducted by the R&D planning section of Division L 3 and the various projects. Alternative frames are worked out in the course of these joint planning activities.

The final decision concerning the ultimate proposal rests with the Director General of the NBE.

Commissioned projects

Liaison officers for projects are appointed within the appropriate **specialized divisions** of the NBE. The task of these officers is to provide projects with information that is needed to make them relevant and up-to-date from the NBE's point of view. The liaison officers must also be continuously apprised of results obtained within projects and must communicate these results to persons responsible for work on instructions, curricula, teaching materials and many other topics at the NBE.

The various projects then operate independently, but they keep in regular touch with the NBE through the special school research section, L 3:1.

Most of the NBE's R&D work is done by the educational research institutions of the six largest schools of education (Stockholm, Mölndal, Malmö, Linköping, Uppsala and Umeå). These institutions are gradually being given the personnel and the facilities for more permanent commissioned activities on behalf of the education system. In recent years, however, a rising proportion of NBE research assignments have been accepted by behavioural science and other university institutions.

Commissioned R&D activities must be problem-oriented and the main focus of attention must be on educational questions. The term educational, however, must not be interpreted in the narrow sense of instruction and learning. Increasing prominence is being given to social and economic questions in the education system and to questions concerning goals, partnership, student democracy and many other aspects. Projects may come within easily delineated research disciplines, but it is equally common for them to be interdisciplinary.

The institutions of behavioural sciences are in a good position to establish interdisciplinary work of this kind, thanks to

Timetable for project planning and budget requests

20th Jan. approx.	**Budget request meeting I** Decisions concerning preliminary total frame for the appropriation and frames for the various programmes.
1st Feb. approx.	Divisions/institutions submit plans for new projects in ten copies to Div. L 3, NBE (updated activity plans for current projects have to be submitted by 15th Dec).
20th Feb. approx.	L 3 summarizes incoming project plans in project lists, one list per programme.
20th Feb. approx.	L 3 distributes the project list to the programme groups together with particulars concerning the decisions adopted at the budget request meeting concerning a preliminary total frame and frames for the various programmes.
1st March approx.	**Programme group meeting I** Definition of the direction of development work according to the development programmes which have been drawn up and also according to the guidelines indicated at budget request meeting I. Instructions are issued for subsequent drafting work by L 3 in preparation for programme group meeting II.
1st—20th March	**Drafting work by L 3** Contacts with the relevant working units within the NBE and with researchers (Planning Committee included) concerning project plans. A list of projects is drafted for each programme.
30th March approx.	A draft list of projects is sent to each programme group.
10th April approx.	**Programme group meeting II** A final draft project list is adopted. Various alternative orders of priority are indicated. A budget request draft is examined and a long-term assessment made for each programme group.
20th April approx.	The Research Advisory Committee comments on the proposals of the programme groups.
25th April approx.	**Budget request meeting II** Adoption of the project lists to be included in the NBE budget requests. Divisions and institutions are then notified of the final draft. NBE Board decision concerning budget requests.
First Weds. in May	Allocation

their contacts with other fields of research and with practical educational activities in schools.

Contacts are established, for instance, via reference groups, advisers, working committees and seminars. One can therefore say that there is less and less justification for the accusation sometimes levelled against NBE commissioned research of being all pedagogics.

This is part of the reason why commissioned research has been concentrated to a handful of institutions—primarily to the educational research institutions of the universities and of the six major schools of education. Expenditure on these research activities totals Skr 16.2 million; see table 14.

Efforts are made to set clear limits of duration and content for all projects. Where duration is concerned, the demand for thoroughness often results in projects lasting four or five years. In isolated cases, project plans have been still more extensive. The

Table 14. Institutional allocations for the fiscal year 1975/76. Skr 1,000

The Department of Educational Research, Linköping School of Education	1 361
The Department of Educational and Psychological Research, Malmö School of Education	2 385
The Department of Educational Research, Mölndal School of Education	2 100
The Department of Educational and Psychological Research, Stockholm School of Education	1 942
The Department of Education, Umeå School of Education	794
The Department of Educational Research, Uppsala School of Education	1 390
The Institute of Education, University of Gothenburg	1 963
The Institute of Education, University of Linköping	446
The Institute of Education, University of Lund	346
The Institute of Education, University of Stockholm	933
The Pedagogical Centre in Stockholm	478
The Institute of Psychology, University of Stockholm	426
The Institute of Sociology, University of Lund	225
The Institute of Sociology, Unversity of Uppsala	556
The Institute for Linguistics, Unversity of Stockholm	246
The Institute for Linguistics, University of Uppsala	104
The Institute for Speech Transmission, Royal Institute of Technology, Stockholm	76
The Bernadotte Home, University of Uppsala	140
The Institute for Geography, University of Umeå	50
	16 158

drawback to long projects is that the problem picture they start with often changes with the passing of years, and changes ocurring in school and society in the meantime can accentuate new and unforeseen problems within the project itself.

With projects normally lasting not more than three years, planning and follow-up are simplified and the up-to-date-ness of the project is safeguarded.

Of course, projects can take more than three years. There are certain longitudinal studies which cannot be shortened, e.g. those concerned with maturity processes or with changes occurring in a school system over a given period of time. Longitudinal studies of this kind, moreover, have proved to be among the most rewarding.

Project work

Project management

Most educational R&D is organized into project groups. Each project has a leader who is immediately subordinate to the Head of Division/institutional head in charge. Research projects at schools of education and universities are also provided with a scientific leader, unless the project leader has the qualifications of an assistant professor.

The main responsibility for the NBE's contacts with R&D projects in progress at schools of education and universities rests with Division L 3 and with any other working units that may be involved in a project. Projects at universities and schools of education must be kept under observation by project secretaries and educational advisers and also, in specialized contexts, by officers in other working units who handle matters coming within the scope of the project (generally educational advisers).

Certain projects with wide-ranging field contacts will have one or more reference groups, which supply continuous reports on the progress of the project to those who are most immediately concerned. These groups are also consulted on the work of the project group and are given an opportunity of influencing the direction taken by that work. Reference groups can be central, regional or local.

The central reference group, for example, can comprise NBE representatives, teachers, parents and guardians, students, researchers from neighbouring subject sectors, and representatives of commerce and industry and public authorities etc.

The local reference group may comprise LEA and county school board representatives and local branches of teachers' and students' associations etc.

R&D projects often call for some form of experimentation in the school system or in adult education. If the experimentation involves the systematic testing of teaching materials, the teaching materials section at the NBE, L 3:2, is notified At the same time an indication is given of the purpose and scope of the test. Permission has to be obtained from the NBE for investigations requiring departures from normal educational organization, from the curriculum or from time schedules and syllabi.

As a general rule the educational and administrative responsibility for experimental activities rests with the schools concerned. It is important for LEA's, school management, teachers and students affected by experimental activities to be properly informed of the arrangement and consequence of experiments during the period concerned.

It is the duty of the project leader to submit an anuual report on work under the project. He must also supply the NBE with an account of important research findings. This account may take form of reports, discussion papers etc. The liaison officers and reference groups involved in the project must also be kept continuously informed of the progress made.

The final report on a project is made in writing and in the form of a seminar or conference to which various representatives are invited, such as the NBE personnel involved, representatives of educational publishers, methods lecturers, in-service trainning advisers, personnel associations, researchers, representatives of commerce and industry etc.

EPÅL—an example

Epål (English at Junior Level) is one of 87 projects which have been commissioned this year from institutions all over Sweden. The project is being conducted at the Department of Educational Research at the Uppsala School of Education, and one of its aims is to test how a certain number of English periods per week can be most suitably divided between the various grades of junior and middle level. An experimental group of children are already being taught English in the second term of grade 1.

After the first term:

Concerning the results of the first term's work:

"I think the children are very clever, and because there is so much revision in the material even the weaker ones have done well and enjoyed themselves."

The general working of English teaching:

"It has worked better once the children have got into the way of it—and me too, come to that."

"Quite well, but it is hard to keep an unruly class interested all the time."

What has work with EPÅL English been like from your own point of view?

"Hard work, but interesting and enjoyable."
"The actual teaching has been pleasant and interesting, but the preparations have been rather a burden sometimes. There are so many tests: this has meant a lot of work and taken up too much time."

"Very interesting and encouraging. The handbook is so detailed that you do not have to work yourself to death preparing lessons."

After four terms:

"Planning is easier, now that one is used to it."

"It's wonderful being able to teach English to such small children."

"Both teachers and children have been encouraged by the lessons."

The EPÅL project can be taken as an illustration of the non-application in the NBE's R&D activities of a linear model, i.e. a model stricly divided into phases, from research via the construction of material and testing to execution on a small scale and, finally throughout the school system. The various phases in EPÅL—specific basic research, applied research and development work—have been integrated within a single project at a single institution. Consequently the entire volume of the project is roughly as follows:

- Specific basic research—about two per cent to start with, about 15 per cent midway through the project and two per cent at the end of the project.
- Applied research—about 20 per cent to begin with, 65 per cent midway through the project and 45 per cent at the end of the project.
- Development work—about 80 per cent to begin with and 20 per cent midway through the project. Information and application will take up a great deal of the final phase of the project.

The advent of the EPÅL project can be seen as a natural continuation of the development which has been undergone by the teaching of modern languages in recent decades. English, for instance, which was once reserved for a minority, is now compulsory for all students between grades 3 and 9 of elementary school, which means that it is one of the most important proficiency subjects on the elementary school timetable.

The idea of the project originated in the autumn of 1969, during a discussion between modern language methods lecturers at Uppsala School of Education concerning the early commencement of modern language studies. Later on they contacted K-G Ahlström, at that time Assistant Professor in Uppsala. At their meeting, plans were discussed for an earlier commencement of English studies and the status of the second and third foreign languages was also considered.

K-G Ahlström reviewed research on re-

ports within this field, and an application for a grant to finance a research project was drawn up and sent to the NBE. The project plans described in the application covered a variety of angles and presented a number of subsidiary problems apart from the main question concerning the effects of an earlier commencement of English studies in elementary school.

The NBE awarded an initial grant for the project and a period of intensive planning ensued. Project work was led by a reference group comprising methods lecturers (Sten G Hellström, Sven G Johansson, Per Malmberg) and Professor Ahlström, together with an increasing number of co-opted assistants.

Messrs. Lennart Linell and Lars Holmstrand were engaged for the actual research side—research organization, the planning and conduct of measurements etc. Authors and clerical staff were engaged for the production of the special teaching materials that would be needed. The reference group met very frequently at this stage, a great deal of attention being devoted to guidelines and principles for the teaching materials, the allocation of teaching periods, the general design of the project and many other questions besides.

During the introductory stage and until the end of 1972, work on the project was characterized by a need for the simultaneous performance of two kinds of task, viz ordinary research duties and the construction of teaching materials.

Another very important aspect of project work was the maintenance of contacts with the experimental area, the Västerås school district. The field work required something of an installation phase, in that the experiment as such and the teaching materials to be used in it had to be presented to the teachers and school managers concerned.

The teachers taking part in the experiment were given regular instruction in the use of the teaching materials; this instruction was given at least once every term when using the EPAL teaching materials.

To begin with, lessons were regularly observed by the project team, by means of visits to schools and frequent tests, the latter comprising English tests, soundings of the children's attitudes, questionnaires to teachers etc.

The personnel strength of the project was stepped up fairly soon. Two postgraduate students were attached to the project to deal with some of the research problems which were indicated in the original plans and which also resulted from the broad basis of the project. Lillemor Lewrén B.A. undertook to study the development of the children's English pronunciation. Lena Rehnström planned and conducted a series of systematic classroom observations of English teaching in all the experimental groups.

Several groups of undergraduates prepared essays on the EPAL project while it was in progress. The situation of immigrant children was among the topics studied. The teaching material designers also turned to various research problems after production of the teaching materials had been completed. Among other things, various studies were made of the practical functioning of a highly systematic model for the introduction of English studies.

On the research side, attention very soon had to be devoted to such concrete problems as the construction of measuring instruments. The planning of measurements, the planning and construction of tests of different kinds and the conduct of all the measurements in the Västerås classes soon developed into a very wide-ranging task. Altogether more than 20 different English tests were used in the test group up to and including grade 4.

The management of data presented a difficult problem. The relatively unusual nature of the project—following different groups of children for several years—involves certain difficulties which were not altogether foreseen. Because of the high rate of child migration to and from Västerås and between classes belonging to different groups, a careful check had to be kept on such movements. Thus data had to be processed in such a way that children leaving or entering the various experimental groups in the course of the experiment could be 'eliminated'.

After some trials and tribulations, a procedure was evolved to deal with these problems and data were gradually transferred from test papers etc. to punch cards for data processing. Personnel were engaged from time to time for marking, punch card operations and other tasks.

A number of preliminary surveys have been compiled from the data fed into the computer system. These are a species of raw material for further processing and analysis. The EPAL project is now (autumn 1976) at this phase, i.e. the phase of analysis, interpretation and reporting.

At the same time, however, work is in progress on the planning and construction of measuring instruments and of the collection of data. Important measurements will be taken in the spring term of 1976, when the experimental classes will be in grade 6.

So far the EPAL project in Uppsala has cost Skr 2.5m. About 80 teachers and 65 classes have taken part, making over 2,000 persons altogether.

What does the NBE stand to gain from a project like EPAL? The following may convey some idea of the benefits.

- More knowledge concerning the intellectual, social and emotional development of the students in relation to their social, economic and cultural background.
- Knowledge concerning the language skills of different student categories at an early age.
- Planning data for the junior and middle level time schedules.
- Documentation on which to base recommendations concerning teaching methods, e.g. in the basic and in-service training of teachers.
- Examples of teaching materials and the evaluation thereof, and also examples of language proficiency tests for lower age groups.

Important side-effects include the following:

- Immediate field effects—on teachers and school classes.
- Improvements to the competence of institutional personnel and of the teaching of pedagogics and methods at the school of education.
- In the course of the project, teacher education at the school of education has acquired concretions of educational R&D. Trainees have participated in R&D work as test leaders and classroom observers and in other capacities.

It was understood in planning the EPAL project that a certain amount of English teaching material would have to be constructed.

Firstly, teaching in grade 1 was bound to be essentially different from teaching in grades 4 and 5. The basic development of the reading and writing processes is in full swing in grade 1. Moreover the general maturity and interests of grade 1 pupils would seem to demand somewhat different teaching materials from those used by children who are two or three years older.

Secondly, the production of teaching materials as part of the project was intended to strengthen control of the teaching process. For obvious reasons, the teachers had very little experience of the teaching of English at junior level. Consequently there was a great need for beginners' material which would give them the greatest possible assistance—an exhaustive teachers' handbook, an abundance of tape recordings of authentic English voices etc.

Lgr 69, the Elementary School Curriculum, was one of the obvious points of departure for planning purposes. Among other things this Curriculum states the general aims of English teaching and the main subject items to be taught at junior level (grade 3). It also contains instructions and commentaries on methods.

For the children's sake, it was considered appropriate for the material to include plenty of illustrations as well as songs, games and other activating exercises. Their prounciation was to be modelled primarily on tape recordings of English voices.

The EPAL teaching material ultimately came to comprise four parts—one for each of the first four terms of English in the

experimental group. The first three parts include the following components:

a) an exhaustive teacher's handbook

b) overhead transparencies

c) tapes

d) flano-pictures in A 4 format

e) flash cards

f) a pupil booklet.

Part 4, which introduces the reading of English, also includes text overlays for the overhead transparencies.

One of the main principles of the teaching material is the **functionality** of the language content, which among other things implies that it is based on the language used in natural, everyday situations. Another important aspect is that **activities** are easily started, quiz games, singing and elementary dramatization exercises being frequently recurring elements in the highly systematic structure of the exhaustive methodological instructions accompanying the teaching material. Because the language material is functional and activating, and moreover because it has been chosen to suit the children's interests, it should also have a highly positive effect on their **motivation.**

The construction of the EPAL material proved expensive, despite the relatively simple and unmechanized methods employed. Plans had to be made for the adoption of other teaching materials already available commercially. The project personnel therefore reviewed the commerically available materials for grades 3—6. *"New Hallo Everybody"* was selected, and various measures were taken to ease the process of transition. Among other things, supplementary material was compiled for the revision of certain parts of the subject matter in the EPAL teaching materials.

The planning of future projects

Costing plans

Work is in progress at the NBE on a development plan for the school system. This plan is to be based on the goals of education policy, on assumptions concerning social change outside the education system and on current problems in the education system. The plan has a bearing on the direction of R&D and is resulting in lists of short-term and longterm projects which have been selected to make the greatest possible contribution towards the attainment of the aims of the school system and towards the development of preparedness for future changes to that system.

Estimated R&D expenditure for the coming five years is shown in table 15, below.

The NBE has compiled the following discussion papers on long-term development planning with a view to the collection and systematization of data concerning future R&D requirements:

- Documentation for a debate on school development programmes (elementary and upper secondary school).
- Development work in the teacher education sector during the 1970s and 1980s.
- R&D requirements in adult education.
- Joint R&D requirements in the NBE sector.

Table 15. Allocations 1970/71—1980/81. Nominal figures

Fiscal year	Allocations, Skr 1,000	
1970/71	18 150	
1971/72	20 590	
1972/73	22 975	
1973/74	22 625	
1974/75	26 625	
1975/76	31 982	
1976/77	33 750	
1977/78	44 000	forecast
1978/79	51 000	
1979/80	58 000	
1980/81	66 000	

The contents of these development memoranda are based on statements from the Government and Riksdag in connection with the enactment of important reforms, and also on evaluations of the school system through exploratory projects, curricular follow-up, upper secondary school inspections etc. The aim, then, is for these memoranda to furnish guidance for the more long-term direction of R&D under the auspices of the NBE.

A specification has thus been made, for the coming five-year period, of activities to which special attention is to be given in the R&D work done under the various programmes. The following is a brief summary of the efforts planned for the period 1976/77—1980/81:

Pre-school

Throughout the five-year period, priority will be given to R&D concerning activities aimed at greater continuity in the forms of activities between pre-school education and junior level. The design of development work will depend on the recommendations made by the Advisory Committee on Pre-School Education.

Elementary school

During the five-year period, priority will be given to questions concerning goals and evaluation in the development of greater local liberty in elementary schools concern-

ing ways and means of attaining the goals of the school system. Continued efforts should be made on behalf of handicapped groups and other groups requiring support and stimulus.

Upper secondary school

During the five-year period, priority will be given to questions concerning goals and evaluation, with particular emphasis on basic skills. In educational planning, curricular review and the development of teaching materials, special attention will be paid to the problems of vocational courses of study.

During the same period, consideration will be given to the question of a revision of upper secondary school organization on the lines proposed by the SSK Commission (the Commission on Schools, Society and Municipalities) in its report "*School and the Individual*".

Some of the questions relating to the development programme for upper secondary school will be covered in the Joint R&D programme (see below). This include the link-up with adult education and the role of upper secondary school in a system of recurrent education.

Adult education

It is proposed that one fifth of the total R&D appropriation for 1976/77 be devoted to adult education. This figure is expected to rise during the coming five-year period, but there will be little scope for new projects in 1977/78, because many of the new projects suggested for 1976/77 will take up a large proportion of the additional scope. During the period, priority will be given to development work on questions of general relevance to all adult education.

Teacher education

Both volume and planning should be considered in the planning occasioned by the Riksdag resolution adopted in response to Government Bill 1975:9 concerning Higher Education.

Joint R&D work

During the coming five-year period, special attention will be devoted to work in the experimental educational areas, the planning of teaching materials—including both analyses of needs and evaluation—development work for the instruction of the handicapped, and the analysis of study and vocational guidance and other measures of student welfare. Priority will also be given to projects aimed at the overall evaluation of the school system.

Teaching material development

The development and production of good teaching materials is an important precondition of successful school work. Society has assumed its share of responsibility for teaching material development in many different ways: money is invested in the production of the Swedish Broadcasting Corporation and the TRU Committee, LiberLäromedel —an educational publishing firm—is part of the Statsföretag group of State-owned enterprises, and the State has set up an Institute for Teaching Material Information. Apart from its main task of distributing information on teaching materials, this Institute is also responsible for the allocation of State financial support in sectors where there is a shortage of teaching materials.

A large proportion of the NBE appropriation for educational development is applied to measures within the teaching material sector. This work involves the teaching departments for schools, adult education and teacher education in collaboration with teachers and personnel from teacher training and in-service training.

Many teaching material projects are based on the institutions of educational research. A great deal of development work is conducted at the four national centres for students suffering from different handicaps—the visually handicapped, the hard of hearing, the orthopeadically handicapped and special school students. An important contribution is also made by educational publishers in Sweden, who make heavy investments in the development of new teaching materials to keep up with the rapid changes occurring in the education sector.

Knowledge, experience and research findings must be continuously fed back into work on the development of teaching materials. At the NBE, work on the collection and synthesis of important research findings is done by the teaching material development section, L 3:2, which has about 15 educational advisers and experts in its staff.

The teaching material section runs development projects of its own in collaboration with various interested parties in the educational publishing sector, and it also participates in projects for which other units are principally responsible. The section's own projects are mainly concerned with general issues regarding teaching materials, such as the development of theories and methods for the planning of teaching, media design, media selection and strategies for the practical implementation in schools of the results of development work. The section is also responsible for the supply of information to producers and consumers, it makes assessments of teaching material requirements, and it compiles documentation for the planning of teaching and the production of teaching materials.

Development targets

The purpose of development work is for the teaching materials used in school to make it possible for teachers and students to work in accordance with the underlying intentions of the curriculum. Teaching materials are only one factor contributing towards the attainment of the predefined goals, but they are an important factor. Given this purpose, the following three goals of development work can be defined:

- to develop methods for the planning, construction and evaluation of teaching materials

- to work for the rational and effective utilization of available teaching materials
- to remedy shortages of teaching materials in education involving small target groups, e.g. in various forms of special teaching and in adult education.

Development work for the improvement of teaching material design

The methods of teaching material construction which are currently being developed and tested are characterized by the importance attached to analyses of the goals and premises applying to teaching. In this connection, techniques have been developed for the definition of goals specific to individual subjects, and goal documents have been compiled in a number of subject sectors. Models have been compiled for the interpretation of the overriding goals of the education in question and of their implications for teaching and teaching materials.

School teaching materials are important implements for the attainment of the overriding aims of the curriculum. Their task is to enable students to seek information, process it actively, analyse it and draw conclusions. Teaching materials must not merely give students practice in the retailing of facts, they must also encourage critical evaluation.

The demand for greater individualization calls for an improvement of theories concerning the selection of modes of presentation. Soundly considered media selections are of crucial importance to the effective use of teaching materials. The use of sound and pictures in teaching and the potentialities of the computer and other technical aids for the improvement of teaching are therefore being investigated in several projects.

Development work within the educational programme unit of the Swedish Broadcasting Corporation (SR/UTB) has made teachers and students more prepared to utilize pictorial and recorded components in teaching materials. The same applies to knowledge concerning the integration of pictorial and recorded elements with printed material. Collaboration with SR/UTB has been of great importance in connection with the introduction of new subjects in school and new items in traditional subjects.

The teaching material section is also studying questions connected with the examination and practical testing of teaching materials. Municipalities are now empowered to adopt teaching materials experimentally in order to arrange the examination or practical testing of finished teaching materials. Decisions of this kind have to be reported to the NBE by the LEA. In this way the section commands a general view of tests in progress, and it must ensure that these tests are conducted on as uniform a basis as possible. The section is also responsible for NBE resources being used to help with teaching material tests.

Owing to the rapid pace of technical development, schools are constantly acquiring new teaching aids. The long-term planning of teaching and of the production of teaching materials must always be kept ahead of events, so as to ensure that developments are tailored to actual school requirements. Properly used, technical aids can provide new opportunities of planning and conducting teaching.

In this connection the section has the following duties:

- to observe media development in the TV, CCTV and language studio sectors, and to observe the development of other audiovisual aids, computer technology and film
- to keep in touch with hardware and software producers in these sectors
- to compile, revise and distribute equipment lists
- to act as a liaison and service body to other NBE units and other interested parties in this sector.

The emphasis on goals, methods/media and evaluation has led to a vivid awareness of the importance of a careful analysis of the whole of the teaching situation in which teaching material is to be used. Spot meas-

ures concerning different problems will continue to be important, but it is also essential for development work to integrate problems in a total perspective of goals—process—results.

Development work on the utilization of teaching materials

The aim of inducing students to assume a growing share of independent responsibility for their own learning must be reflected in the use of school teaching material resources.

Development work aimed at the better utilization of teaching materials is conducted in a variety of forms. It touches, for instance, on such matters as the organization, distribution and handling of teaching materials and the use of technical aids. This work is done in co-operation with educational publishers, the Swedish Association of Local Authorities, municipal school authorities, schools of education, teachers and other school personnel, e.g. librarians and central teaching material depot staff. Organizational and economic problems, however, are constantly interwined with educational questions. An example of this interconnection is provided by the development work aimed at giving subject conferences better documentation for the evaluation and selection of teaching materials. Another example is to be seen in draft organizational models for school teaching materials. The aim of this work is to secure better utilization of AV material and to improve its integration with printed material. Another aim is for students to be given better opportunities of selecting their own teaching materials and of learning to collect, interpret, evaluate and synthesize information.

The Teaching Materials Committee

Since 1st July 1974, the NBE's duties have included the examination of teaching materials pursuant to the Ordinance Concerning the Registration and Inspection of Certain Teaching Materials. The NBE has a Teaching Materials Committee which is responsible for the examination of teaching materials, above all those employed in the teaching of social subjects in elementary school, upper secondary school and other types of school, with regard to their objectivity. The teaching materials section acts as a secretariat to the Committee.

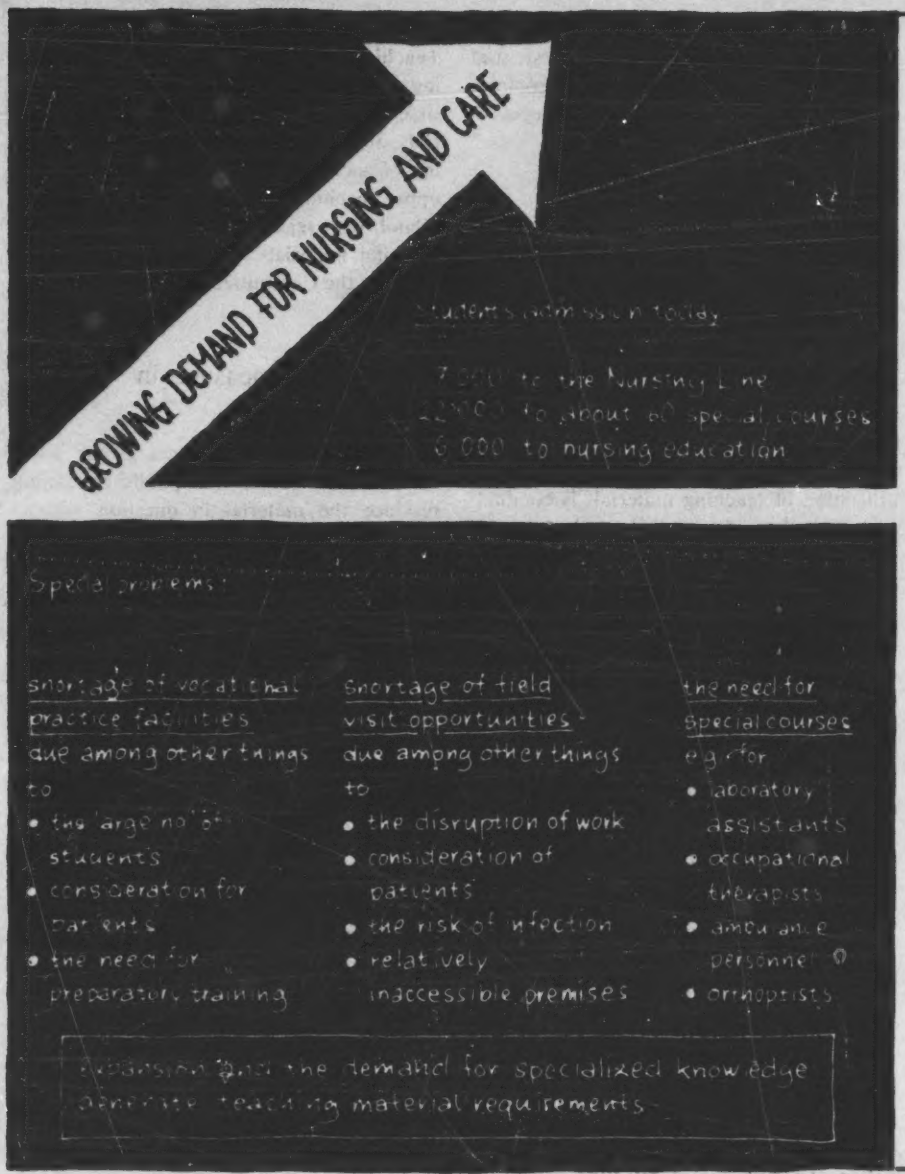
Development measures in bottleneck sectors

Teaching material shortages occur when editions are so small that publishers cannot produce the material in question without subsidies.

The Government and Riksdag are responsible for ensuring that adequate teaching materials are available for all students. However, there are pronounced shortages in several sectors, e.g. special teaching, immigrant education, Lapp education, certain fields of adult education, specialized upper secondary courses and the vocational lines of upper secondary school.

The State production subsidies which are now distributed through the National Institute for Information on Teaching Materials has increased the economic scope available for the production of teaching materials for areas of quantitative shortage. The NBE is conducting development work in this sector with the aim of encouraging the production of teaching materials.

These projects involve advanced development work, with specially engaged teachers developing teaching material prototypes through the interaction of theoretical analyses and practical experimentation. It has been found necessary for a boundary to be drawn in each individual project between finance from R&D allocations and financial contributions by the producers concerned—with or without production subsidies. Since, however, projects of this kind always include both development and production, it is up to the NBE to strike such a balance that only the development side is financed out of R&D resources.


GROWING DEMAND FOR NURSING AND CARE
Students admission today
to the Nursing Line
to about 60 special courses
6 000 to nursing education
Special problems:
Shortage of vocational practice facilities due among other things to
• the large no of students
• consideration for patients
• the need for preparatory training
Shortage of field visit opportunities due among other things to
• the disruption of work
• consideration of patients
• the risk of infection
• relatively inaccessible premises
the need for special courses e.g. for
• laboratory assistants
• occupational therapists
• ambulance personnel
• orthoptists
Expansion and the demand for specialized knowledge generate teaching material requirements

For many special courses with small numbers of students, curricula and teaching material prototypes are developed parallell to each other. A curriculum cannot be finalized until curricular development work has shown what achievements and working speeds can be realistically expected of the students taking a special course.

Formerly, when production subsidies formed part of the R&D appropriation, there was no need for a clear boundary between development work and production subsidization. But as soon as a certain part of the R&D appropriation in the budget proposals was earmarked for production support, the NBE started work leading to the gradual discontinuation of production finance via the development appropriation.

Figure 7

The NBE is therefore applying R&D resources to the solution of problems of this kind in nursing and welfare education. Among other things this work has led to the evolution and production of models and documentation for teaching materials etc.

Pre-training teaching materials. Nursing and welfare students must be given the opportunity of making practical use of their knowledge in authentic surroundings: this is part of their course of studies. But there are more students than there are opportunities of vocational practice. To solve this problem the NBE appointed a working party to construct teaching material for basic nursing and welfare studies, the aim being for lessons and instructions to be designed in such a way as to give the students a greater number of preparatory exercises in basic nursing techniques. Efforts were to be made to establish practice conditions in the classroom that were as realistic as possible. A number of experiments were conducted, on the basic of which it was subsequently decided to plan what was termed a "base package" for use in several elementary courses of nursing studies. This package was made to include matters particularly suitable for individualized and activating tasks.

The base package. A base package constituting a set of self-instructional multi-media teaching material was produced in collaboration with a firm of educational publishers. This material covers most of the basic skills included in nursing work and provides a necessary complement to various textbooks communicating the theoretical facts. Matters covered by the material include personal hygiene for patients, the taking of specimens, forms of treatment, bed-making and lifting techniques.

The base package comprises

- student booklets, with working instructions and tasks
- tape recorded instructions (for individual listening form a cassette recorder via headphones)
- a teacher's manual
- various items of technical equipment.

An example of teaching material development at the NBE

As has already been made clear, however, in teaching material projects which are financed out of the R&D appropriation, care still has to be taken to see that no teaching material production is financed out of the development appropriation. The people responsible for projects are aware of the importance of avoiding this burden on the NBE appropriation, which has already been reduced through the introduction of the production subsidy.

It is the task of the NBE to analyse needs, thereby ascertaining where measures of teaching material development are most urgently required. The NBE sees to it that teaching material development projects are handed over to the educational publishers when the development stage is complete

and the production stage supervenes. The NBE is responsible for experience and result from different projects being utilized in new projects and for the supply of information to educational publishers. Consultations are held between the NBE and the National Institute for Information on Teaching Materials on matters concerning the supply of teaching materials in shortage areas. The NBE can derive assistance in its analyses of needs from the survey of the teaching material market which the Institute compiles through its registration of teaching materials.

Dissemination of results

The section is responsible for the dissemination on development work to interested parties. This is accomplished through reports, debate books, articles and conferences. The teaching materials issue of **Pedagogiska Meddelanden,** no. 2—3/1975, provides a somewhat unusual example of the dissemination of information. Members of the section take part in various in-service training activities arranged centrally, regionally and locally, and this presents them with further opportunities of spreading information. In recent years a great many internal and external projects have centred on teaching materials. Development work is now in progress within the section aimed at relating the results of these projects more closely to school activities, by propagating ideas, models and results and by inducing teachers and students to apply, modify, develop and evaluate them. In this way the section hopes to develop the final phase of R&D—the implementation phase. Up till now, too little attention has been paid to questions of the following kinds:

- what methods should be employed in order for the results of the project to be rapidly applied to school work?
- what expenditure will this involve?
- what organizational and administrative measures will be needed?

There are facilities for informal consultations with other working units at the NBE, the aim being to provide the more continuous contact needed between the NBE and educational publishers on the subject of teaching material development work.

The teaching materials section is specially responsible for developing the communication of information and results to producers. It is vitally important to both sides for schools to be offered teaching materials corresponding to the requirements of the curriculum and incorporating previous experience and research findings. The teaching material section co-ordinates NBE contacts by informing producers of new teaching material projects which may lead to alterations to time schedules and syllabi, and it also informs them of the results of current and concluded projects. Conferences are held in connection with major projects. The section is also responsible for the distribution of new curricular supplements to producers.

R&D work

"General Science at Junior and Middle Levels" (the LMN project) is a project in progress at the Mölndal School of Education, aimed at drafting a scheme for the reform of general science teaching at the junior and middle levels of elementary school. An ecological approach is adopted from the very beginning of grade 1, and the general aims are to develop the children's problem solving ability and communication capacity. Teaching is directly based on the ideas of development psychology and the psychology of learning. It is designed to create fundamental scientific concept formation through teaching with a strong experimental emphasis founded on the children's own experiments and investigations.

The project is being presented in reports and teaching material models. The latter will be developed into teaching materials.

"Educational Planning—Teaching Material Development" (the UPLM project), in progress at the Department of Educational Research of the Mölndal School of Education, also started in 1971 and is now in its

final phase. This project comprises three parts, viz General overriding goals (ÖM), Media/method (M/m) and Formative and summative evaluation (FORSUM). Together these three parts represent an integral view of teaching and teaching materials, a view which is presented in models for the planning, conduct and evaluation of teaching. The models have been developed by means of theoretical analysis and practical experimentation. Work at present is concerned with spreading and utilizing the results of the project in schools and in other R&D work.

TRUAS' activities (TRUAS = The Working Committee for School Experiments within the TRU Committee) have concentrated from the outset on a concerted experiment at a number of upper secondary schools during the school year 1973/74. The purpose of the experiment has been to see how TRUAS' teaching material systems are experienced by students, teachers and school management when two or three of these items of teaching material are used parallel to each other. Responsibility for the now concluded experimentation in the TRUAS sector was taken over by the NBE in 1972. The integral experiment was conducted during the school year 1973/74.

The aim of the project entitled "*The Use of Teaching Materials*" is to utilize the results of various projects concerning teaching materials. These results may take the form of finished teaching materials, as in the case of TRUAS or the Swedish Broadcasting Corporation's Trialog project, or they may take the form of reports on model development and problems, as in the case of UPLM. "*The Use of Teaching Materials*" is aimed at improving the distribution and application of development work in the teaching material sector by conveying ideas, models and results to schools. This can be done, for example, through local experiments and activities in connection with in-service training. In this way development work will provide practical support for those wishing to change and improve the use of teaching materials.

"*Curricular Adaptation and Teaching Material Development in the Adult Education Sector*" (the LIV project) is mainly concerned with the adaptation and interpretation of the goals of elementary school and upper secondary school to suit the needs and circumstances of adult students. This goal description work will eventually provide a foundation for the development of teaching material production and the design of courses. Experimental activities at elementary school level have been conducted in the teaching of Swedish in municipal adult education, in labour market training courses and in study circles.

"*Technology: Upper Secondary School and Continuation School*" is a project in which alternative teaching models are being constructed for the four-year and two-year technical lines of upper secondary school. Goal descriptions are being compiled as a basis for the development of experimental working procedures to simplify the learning of difficult technical items. The purpose of the project is for the teaching of technology to focus on the illustration of fundamental concepts and principles. The project is being conducted at the Mölndal School of Education.

"*Russian in Upper Secondary School*" was originally a teaching material development project in the school sector of the TRU Committee (TRUAS) which was transferred to the NBE in 1972. Practical tests on preliminary material have been in progress at five schools since 1972, and the material is being continuously revised. The development of the material has been supported by educational R&D allocations. Because the target group involved is a small one, the NBE has awarded a production subsidy for the publication of the revised material, which is expected to comprise textbooks and practice books for grades 1—3 together with the appurtenant audio-visual material in the form of overhead transparencies and tape recordings. The components for grade 1 were published in the autumn term 1975.

"*Evaluation of Teaching Materials—Teaching Material Declaration*" (the LD project) is aimed at improving the state of knowledge concerning teaching materials and their role in teaching. The approach

adopted here is to develop methods for the evaluation of teaching materials used in the teaching of different subjects and groups of subjects. This work is resulting in examples of questionnaires to readers, teachers and students and of declarations or informative labelling for the teaching materials themselves. Development work under the LD project covers the teaching of mathematics, Swedish, English and general subjects (history, geography, general science, RK etc) in elementary school together with business economics, Swedish and general science in upper secondary school. This is one side of the work of the project. The other is aimed at investigating possible improvements to the teaching material evaluation that is already being practised in the municipalities. The intention here is for practical development work to evolve routines facilitating an educational evaluation of different teaching materials as a basis for the selection of materials. Experimental activities are in progress in a number of municipalities and schools in Sweden. The project began in 1972 and will end in 1978.

"*Collaboration between Teachers and Librarians*" (the LBS project) is aimed at integrating the library with teaching and establishing forms of co-operation between students, teachers and librarians for the better utilization of library services. The standard programmes for the teaching of Swedish and civics in grade 1 of upper secondary school have been made to include progressively more difficult exercises in library techniques and information retrieval. This working model also includes the selection of working forms and teaching material categories (text, picture, sound) appropriate to the subject items where library practice has been included. The experimental activities were conducted at five upper secondary schools during 1974/75. A final report on the project will be issued in the spring of 1976.

"*Teaching Materials for Immigrants in Elementary School*" (the LIG project) started in 1970.

The main task of this project is to provide immigrant pupils in elementary school with suitable teaching materials by developing teaching material models, analysing needs, participating in the adaptation and translation of Swedish teaching materials and adapting certain teaching materials from the immigrants' native countries. The project also involves the compilation of teaching material checklists and information material in various languages, including glossaries of school terminology. The project comprises a number of working parties, the total personnel strength being about 50. Information on the project is being distributed to municipalities with large immigrant populations and to teachers and school management taking part in the in-service training activities sponsored by the NBE on the subject of immigrant affairs.

"*The Computer at School*" (the DIS project) began in 1974. The DIS group is to lead and co-ordinate the educational development work supported by the NBE in connection with the use of computers. The tasks of the project can be summarized as follows:

- planning of R&D and determination of priorities for the same co-ordination and initiation of experimental activities
- dissemination of information on current experiments.

Instruction concerning computers and their use is being planned and can now be provided at various educational levels and for various educational purposes:
general education
training for persons using the computer as an aid in their work
training for computer specialists, computer technicians, programmers and systems analysts.

Priority has been given to the first two sectors of this work. Syllabi and in-service training programmes have been drafted for a basic course in elementary school and upper secondary school and will be tested on a limited scale during the spring term of 1976. An equipment group has been set up as part of the project. The equipment question covers educational, economic and technical problems.

The project in its present form started in 1974 and is expected to continue until 1978.

Evaluation

The purpose of evaluation

There have been increasing demands in recent years for an evaluation of schools and school reforms in more general terms and with reference to educational policy. Evaluation of this kind cannot be confined to student achievement in individual subjects; it has to comprise more general educational results. Has the new school system given young persons a sound preparation for their role as citizens and practitioners of trades and professions? Has their education been conducive to equality and partnership?

The NBE collects empirical documentation for evaluation of this kind in the course of its regular work and through a series of special longitudinal studies. The field contacts of educational advisers, upper secondary school inspectors and other experts are essential factors in the regular feedback of information. Longitudinal projects based on institutions of the behtavioural sciences include the "*Västmanland Survey*", which covers an entire generation of elementary school students in the County of Västmanland, the "*Örebro Project*", which involves a psychological and pedagogical effect study of some 2,000 elementary school students with regard to social adjustment etc., and the project entitled "*Qualitative Evaluation of Teacher Education*", which is a longitudinal study of a complete generation of trainee teachers at all schools of education in Sweden.

Evaluation in schools has long served another purpose, namely that of supplying **information on students' study achievement.** Students and their parents need information on the progress of studies and on the students' general development at school. Evaluation can also give the students an idea of the educational demands placed upon them. Teachers and other school personnel need to know how instruction and other school activities work in practice, so as to be able to plan and modify their own work and that of their classes accordingly. Receiving schools, companies and institutions all need information on which to base the selection or engagement of candidates. Information is also needed for the adjustment of teaching and working methods to the circumstances of the recruits.

Aids to evaluation

Evaluation inevitably demands access to measuring methods of different kinds, for the very process implies the collection of data which can be analysed and interpreted and taken as a foundation for practical measures.

Achievement tests have long been an important aid to evaluation. Other methods include questionnaires, observations and interviews. Tests have been traditionally used, for instance, in connection with diagnosis, changes of school level, the award of marks, selection of candidates and final examinations.

Tests are compiled at various levels within the school system. A large proportion of them are composed by the individual teacher as part of his job of continuously guiding, assessing and rating his pupils and also as a means of judging whether his teaching has been properly arranged. Nowadays teaching materials also include tests for diagnostic purposes.

The NBE evaluation section—its organization

On 1st July 1965 the NBE acquired a special unit for test construction and evaluation questions. This unit was organizationally linked as a section to the R&D division within the Teacher Education Department. The working unit is designated L 3:3.

Section L 3:3 comprises a Head of Department, a Head of Division, an educational adviser and seven psychologists together with ten other persons of various categories. The permanent staff includes experts representing the natural sciences and modern languages. In addition to the permanent staff there are about 150 experts involved in the work of the section.

The section applies an internal work procedure mainly geared to tests for different subject areas, e.g. Swedish, modern languages, vocational subjects and natural sciences.

The psychologists are responsible for the administrative co-ordination of test activities, and they also act as technical experts in connection with test design, follow-up surveys etc.

Standardized achievement tests as an aid to assessment

Historical background

Centrally constructed standardized achievement tests are a longstanding tradition in Sweden. The question of using such tests to ensure that marks were awarded on equal terms in all compulsory schools in the country first arose in connection with a reform of admissions from elementary school to higher schools. As long ago as 1938, a Government report proposed that admissions should be based on elementary school leaving certificates. The awards recommended that "*certain standardized achievement tests should be placed at the disposal of teachers as an aid to the adjustment of scales of awards*". The first standardized achievement tests in Swedish and arithmetic were taken by classes 2, 4 and 6 of the old elementary school in the spring term of 1944.

The standardized achievement tests used in upper secondary schools are a more recent innovation than the elementary school version, introduced as they were in connection with the reform of upper secondary schooling in 1965. Normative instruments were needed to ensure the comparability of marks awarded by different teachers and at different schools. In this way the upper secondary school tests took the place of the written matriculation examinations.

Both elementary school and upper secondary school standardized achievement tests have undergone several changes over the years, mostly in connection with revisions of the curricula. At present these tests are administered in the subjects and grades indicated in tables 16 and 17.

Production procedure

The production of standardized achievement tests is a team job involving the participation of subject experts and experts on testing methods, among others. The principal stages of production are as follows:

1. Analysis of the curriculum with reference to the subjects and grades concerned, in order to concretize the goals and principal items of the curriculum.

Table 16. Standardized achievement tests in elementary school

Grade	Subject	No. students
3	Swedish	120 000
3	Mathematics	120 000
6	Swedish	103 000
6	English	103 000
6	Mathematics	103 000
8	English, general course	37 000
8	English, special course	63 000
9	Swedish	100 000
9	German, general course	14 000
9	German, special course	25 000
9	French, general course	5 000
9	French, special course	12 000
9	Mathematics, general course	43 000
9	Mathematics, special course	57 000

Table 17. Standardized achievement tests in upper secondary school

Grade	Subject	No. students
1	Mathematics—Arts, Social & Economic lines	14 000
2	Swedish	27 000
2	English	27 000
2	German (as 2nd foreign language)	13 000
2	Mathematics—Science and Technical lines	13 000
2	French (as 2nd foreign language)	8 000
2	Physics	13 000
2	Chemistry	13 000
2	Business economics	5 900
3	Swedish	26 000
3	German (as 2nd foreign language	4 700
3	French (as 2nd foreign language)	4 300
3	Mathematics	23 000
3	Physics	13 000
3	Accounting	2 500
3	Distribution	1 600

2. The selection of specific goals judged to be of central importance and suitable for assessment by means of standardized achievement tests. Time, cost and technical factors are taken into account here.
3. The development of suitable types of tests and the composition of test questions in accordance with the previous analyses.
4. Trial administration of the test questions. Often this stage also includes questionnaires addressed to students and teachers.
5. Analysis of the results of the mock tests.
6. Design of the final version of the tests.
7. Administration of the finalized tests in schools.
8. Analysis of test results and continuous observation of activities.

Stages 1, 2 and 6 of the above are performed in reference groups, there being one reference group for each subject. These groups include teachers from the school levels concerned, methods lecturers, educational advisers, upper secondary school inspectors and personnel from L 3:3. The reference groups meet several times every school year. Teachers with extensive experience of teaching at the levels concerned are engaged for the actual construction work (stage 3, above).

The production of standardized achievement tests is a time-consuming process. As a rule it takes about two years to run the whole gamut from stage 1 to stage 8.

Development tendencies

So far standardized achievement tests have served limited purposes. Most of them have been used for the normalization of marks. Some tests have been intended for diagnostic purposes in connection with changes of school level. Aids have gradually come to be needed for **other** purposes, including the following:

charting achievement in a student population

concretization of curricular goals

follow-up of curricular work

planning instruction

checking the equality of educational standards

selection of candidates for higher studies.

It is possible in certain cases for existing tests to be applied to such purposes. Concerning the equality of educational standards, for example, the results of existing standardized achievement tests should yield valuable information. In many cases, however, supplementary test material needs to be constructed with special ends in view. Aids of this kind are now being developed. Thus tests for selection to higher studies (study aptitude tests) are being developed at the Department of Educational Research of the Umeå School of Education.

For some years now work has also been in progress on the development of tests which can be used for charting the achievements of a complete student population and also as input documentation for local educational planning. Tests with this dual func-

tion have recently been compiled in two sectors, viz

1) the vocational lines of upper secondary school (for the characteristic subjects of the building and construction line, the electro-telecommunications line, the motor engineering line, the woodwork line and the workshop line)

2) Swedish and mathematics (basic skills) in elementary school.

The distinctive feature of these tests is that they give a far more articulate picture of the student's strengths and weaknesses than is customarily afforded by standardized achievement tests. The questions on the various subject items are numerous enough to facilitate a reliable assessment. The information which a test of this kind is capable of providing can be used for central planning—in curricular work—and for local planning (teaching design etc.).

Work on the development of exploration and planning aids has progressed farthest with regard to basic skills in mathematics. Tests have been constructed for each of the grades 4—9 of elementary school on the basis of the NBE guide "*Basic Skills in Mathematics*". The six tests which have been constructed are not identical, but they contain certain problems which are common to two or three grades. This makes it possible to study the extent to which students in different grades retain the skills practised earlier and acquire those presented later on. The tests have been taken by practically all pupils in grades 4—9 in a medium size municipality outside Stockholm. The study has resulted in findings which are of interest for both central and local planning purposes. Thus it was found that, with the exception of four subject items, pupils had a better command of the basic skills than had been feared and that pupils in the senior grades tended to consolidate their basic skills instead of losing them. These results have had certain effects on the apportionment of teaching resources in the municipality concerned, and it also seems to have helped to make the participating teachers still more aware of the importance of the basic skills and of the importance of concerted local planning within and between school levels. Development work recently entered the next phase, in which the exploration will be followed up by various practical programmes, which will be analysed and appraised subsequently.

The main emphasis of the above account of the mathematics study is on the **results** which the pupils obtain and the measures which are taken once the result of the exploratory study has become known. Survey instruments, test prototypes and other aids can often serve another purpose, namely the **illustration of intentions and content** in such a way as to furnish guidance for teachers and others. This particularly applies to areas which, for various reasons, are hard to evaluate and are therefore liable to be overshadowed by others. Methods of testing spoken command of foreign languages, experimental skills in scientific subjects, realistic problems in economic subjects and questions concerning the work environment in vocational subjects are some of the areas for which tests have been compiled or are being developed. Documents of this kind can be added to curricular supplements and teaching material prototypes, lending practical emphasis to some of the goals of the curriculum. Illustrative curricular documents of this kind, however, need to be accompanied by commentaries to furnish necessary guidance and prevent misunderstandings. This information can be presented in teacher's guides in connection with a curricular revision. In longitudinal studies, on the other hand, survey reports describing and commenting on investigation methods and results can be compiled and distributed to interested parties.

Summing up, it is insufficient today and will remain so in the future for evaluation measures to be confined to the production of aids to the assessment of the performance of individual students. Evaluation must also include a greater production of aids which can be applied to the solution of specific educational poblems. Suitable aids, combined with exploratory and longitudinal studies, can provide valuable support for curricular work, thereby creating opportunities of practical measures and guidance.

Curricular follow-up

Curricular follow-up is a form of development work undertaken by various working units at the NBE or by experts and working parties/committees appointed by those units. This work covers all questions connected with school activities, and it is often led by the NBE educational advisers.

One of the duties of the NBE according to its standing instructions is to ensure that

"*the content and methods* (of school education) *are constantly renewed, developed and improved in response to the progress of research and to developments in public and private administration, in commerce and industry, in the labour market and in other sectors of society.*"

The goals, content and methods of school activities are centrally governed by the Education Act, the Education Statute and the curricula. The curricula lay down goals and guidelines and general instructions. They also contain time schedules and syllabi together with special instructions and commentaries.

Follow-up work takes the curricula as its starting point and is aimed at the collection of experience, at the consideration of necessary changes and at the realization of educational goals in everyday school life. It is therefore natural for such terms as "curricular follow-up", "continuous development work" and"continuous curricular revision" to be interconnected.

A curriculum cannot survive indefinitely as the static expression of a certain approach at a certain point in time. Profound changes in society and in its values, the changing demands of employers and other interest groups, new research findings and experience all have to be reflected by a gradual instruction of the curriculum and the goals of the various subjects.

However, it is in the best interests of the entire school community if sudden drastic changes can be avoided. Long-term curricular work, therefore, is also aimed at making processes of change as gradual as possible.

The curriculum, then, lays down guidelines for school activities and gives examples of methods and working procedures. In this way it helps the teacher, acting on his own responsibility and initiative, to focus his activities on the given objectives of the school system.

Just as the individual teacher constantly evaluates the results of his teaching in relation to the goals he has set himself, the curriculum itself has to be evaluated and followed up in more general terms.

Elementary school

The first elementary school curriculum, Lgr 62, came into effect in the school year 1962/63. Shortly afterwards the NBE started a longitudinal study of the curriculum. Eventually this study led to the adoption by the Government and Riksdag of a new elementary school curriculum, Lgr 69. This curriculum came into force in the school year 1970/71 and at the same time work began on "*Curricular follow-up for elementary school* (LUG)".

The principal aim of LUG is to increase the ability of schools to achieve their centrally defined goals. The intention is for continuous contact to be maintained with interest groups and recipients (prospective employers, higher schools etc.) to keep the curriculum updated and attuned to social development.

LUG also involves the systematic collection of information on events in schools, as well as the analysis of such information with regard to accordance with the goals and instructions applying to the school system. The aim of this work is to help improve school satisfaction and working conditions, e.g. by giving students and teachers greater opportunities of utilizing resources of personnel and material in their work.

LUG focuses on an ongoing systematic appraisal of the curriculum in everyday teaching situations. The results of this development work will be rapidly applicable to the revision of instructions and supplements, the activation of teaching material development and the stimulation of teacher training.

Curricular follow-up comprises three stages: collection of information, analysis and practical measures.

Collection of information

During this initial stage, questionnaires, interviews, conferences and other means are employed to collect information on the situation in schools in different areas. Efforts are made to form a picture of the implementation of the curriculum in schools throughout the country and of the problems which this has raised: the organizational difficulties that have been observed; the practical functioning of premises, teaching materials and equipment; teacher and student attitudes etc.

Major questionnaire studies have so far been carried out in the following sectors:

- Organizational measures in elementary school (annual questionnaires addressed to school management).
- Teaching at junior and middle levels.
- Swedish.
- Mathematics.
- Social subjects at senior level.
- Religious knowledge.
- The teaching of immigrant children.

Analysis

The information thus obtained is then analysed, for instance, with regard to its degree of accordance with the goals and instructions contained by the curriculum. Are the goals of the curriculum being achieved, or is there a wide gap between curricular ideals and everyday school life?

Once information has been collected and fully analysed and problem areas have been delineated, documentation now exists on which to base practical measures. The measures taken must be conducive to better agreement goals, activities and results.

Practical measures

The NBE compiles a catalogue of long-term and short-term measures to be taken. Short-term measuers may include the following:

- modifications to the curriculum, e.g. new instructions, examples of planning, curricular supplements,
- the construction of goal descriptions or of goal description models,
- the production of in-service training material, together with other measures in the field of in-service teacher training,
- guidelines for teaching material development,
- programmes for school planning, premises and equipment,
- information concerning results and measures to bring about improvements (Pedagogiska Meddelanden, "Current News from the Board of Education", educational journals etc.).

More thoroughgoing curricular changes (more long-term measures) must of course be based on extensive investigations, analyses and experiments, including the following R&D activities:

- educational investigation and development, based among other things on questionnaires and symposia dealing with various subjects, subject areas and school levels,

Figure 8

Work on curricular follow-up in elementary school (LUG)
Supervision of the relevance of the curriculum
Practical measures
Educational investigation
Practical educational development
• in individual schools
• in experimental educational areas
• in experimental and demonstration schools run by the Schools of education
Alterations to the curriculum, e.g. new supplements
Instructions
Teacher's guides
In-service training material
Teaching material development
Collection of information about work
• in school
• in different grades
• in different subjects and functions
by various methods from various target groups
Information analysis
Has teaching been successful?
Result of this analysis: a catalogue of needs and of measures to be taken

Work on curricular follow-up in elementary school—LUG

- functional experiments, e.g. experimental education areas and practical experiments in individual municipalities,
- educational research at universities and colleges.

Summing up, work under the LUG project can be said to centre at present on the following three important topics:

- improvement of the quality of teaching
- better allowance for the needs and interests of students
- more efficient utilization of existing economic and personal resources.

Here are some examples of the measures which have so far been taken to this end:

Analyses of the **1970 school management questionnaire** confirmed that in many places reserve teaching periods (known as resource periods) were mostly used for the division of classes into two groups following a fixed timetable. This suggested that the instructions given by the curriculum on this point were inadequate. An expert was therefore appointed and a curricular supplement drawn up concerning the use of reserve teaching periods.

The Swedish survey clearly revealed a shortage of teaching materials and methodological instructions for the teaching of Danish and Norwegian, for drama, for voice and speech therapy and for the treatment of students with speech defects. Among other things, this has led to certain practical educational experiments in the Västerås experimental educational area. It has also led to the institution of a new experimental educational area in Gothenburg concentrating entirely on the teaching of Swedish.

A survey of **social subjects at senior level** pointed among other things to shortage of time and an excessive concentration of subject matter. Work has therefore been started to devise more suitable courses of study for social subjects.

The survey of **teaching at junior and middle levels** revealed that experimental work was relatively uncommon. An experimental scheme has therefore been launched aimed at evolving models for experimental teaching.

To avoid further closures of senior level schools, **non-graded senior level schools** are now being run on an experimental basis in five sparsely populated municipalities with single or double senior level classes. This is one example of a research project of direct importance to curricular work. The project is being run by the Institute of Education at the University of Gothenburg. The experiments which are being conducted in the five municipalities include joint lessons for different classes and grades, coordination with other educational needs in the community and collaboration with other senior level schools.

The LUG project has shed light on **the situation of optional subjects** in a variety of ways. Art, economics and technology are being given high priority at present. Teacher's guides are being compiled containing among other things suggestions regarding subjects content, working procedures, premises and equipment.

Immigrant education has formed the subject of a curricular supplement which is now being followed up. Efforts are being made, in collaboration with a project in Uppsala, to devise models for closer communication between schools and homes. The models thus constructed are expected to be practicable on a nationwide basis. Also in the field of immigrant education, continued work is being done on the adjustment of study courses for different languages.

The aim of work under the LUG project is to gradually increase the attainability of the goals defined in the curriculum and at the same time to keep an eye on the relevance of the curriculum. Eventually this work is expected to lead to gradual revisions of the curriculum in accordance with the pattern often referred to as continuous curriculum development.

Upper secondary school

Work on the upper secondary school curriculum (LAG) proceeds along much the same lines as LUG: data are collected and analysed, whereupon practical measures are taken. Most curricular work focuses on a particular line, subject or activity. Here are some examples.

- Proposals concerning the reform of an existing line.
- Time schedules and syllabi for new special courses.
- New instructions for the syllabi of different subjects.
- New syllabi containing suggestions with regard to sequence and methods.
- Instructions concerning the teaching of students with special needs.
- Instructions concerning co-operation between subjects generally and concerning particular aspects of teaching.
- Instructions for students.
- Manuals for teachers.

Most work on the upper secondary school curriculum is planned and led by the school teaching department. Some work is done externally, mostly in the form of research projects at the educational research institutions of the schools of education. These projects are administered through the R&D Division of the NBE, Division L 3.

Work in the four upper secondary school divisions of the teaching department is usually done in project form. Educational advisers and other educational experts lead the work of the working party which is usually attached to each project. These working parties are dominated by practising teachers from schools all over Sweden.

Work is done in the closest possible contact with the teaching profession, one of the means to this end being that participating teachers usually do project work during their spare time and/or during brief recurrent periods of sabbatical leave from their regular teaching duties.

Where large projects are concerned, special reference groups and joint working committees are set up through which "recipients" (prospective employers, representatives of higher education etc.) are given particular opportunities of influencing curricular development. All work on the upper secondary school curriculum is conducted in consultation with a common reference group.

The proposals made by the working parties often lead to decisions in favour of experimental measures at a number of schools. After the proposals have been revised in the light of the experience yielded by the experimental measures, they are usually circulated to various interested parties for comment. A decision is then taken by the Board or the Director General of the NBE. In certain cases this decision will imply that the proposals are to be forwarded to the Ministry of Education.

In a discussion paper concerning a development programme for upper secondary schools, the NBE enumerates areas which should be given priority in curricular work and form the subject of future R&D work.

Reference is made in this discussion paper to the follow-up of the reform of upper secondary education and its social, educational and economic effects.

Has the new integrated upper secondary school counteracted the former social bias in upper secondary and post-secondary recruitment?

Have the resources of personnel and material which were formerly fragmented between different types of school now been co-ordinated?

Has the integrated upper secondary school resulted in the savings which were one of the arguments for its introduction?

The development programme also refers to a follow-up of the reform of vocational education, it refers to student welfare, where a need is found for the attachment of concrete instructions to the instructions for teaching in general and for individual subjects; reference is also made to study and vocational guidance, a new organization for which is to be tested during a five-year period; finally, reference is made to low performers—all of the above topics are to be given priority in follow-up work under the LAG project for the next few years.

Regional development work

The planning and conduct of educational R&D takes place both at central level (the NBE) and at regional level. Regional level for R&D purposes is represented by the 24 county school boards and the six regional boards.

Most of the dealings of the county school boards are with the municipalities, while the regional boards are mainly concerned with teacher training establishments and with the county school boards.

The county school board

The resources of the county school board consist in its educational expertise: the county inspector of schools, school inspectors, in-service training officers, in-service training advisers and county school psychologists. The tasks covered by their development work and that of the county school boards can be briefly summarized as follows:

- to inventory, synthesize and systematize current local and regional educational R&D,
- to assess the relevance and efficiency of development work in relation to the state and needs of the education system,
- to make suggestions to the municipalities regarding development measures aimed at remedying deficiencies and supporting current development,
- to provide personnel resources in support of local development work, or to arrange contacts with the necessary expertise,
- to compile annual general documentation of local and regional development work needs and of the results achieved,
- in all practical contexts, to specially observe and remedy differences and inequalities between municipalities and in this connection to work for co-ordination and intermunicipal co-operation regarding development work.

The regional board

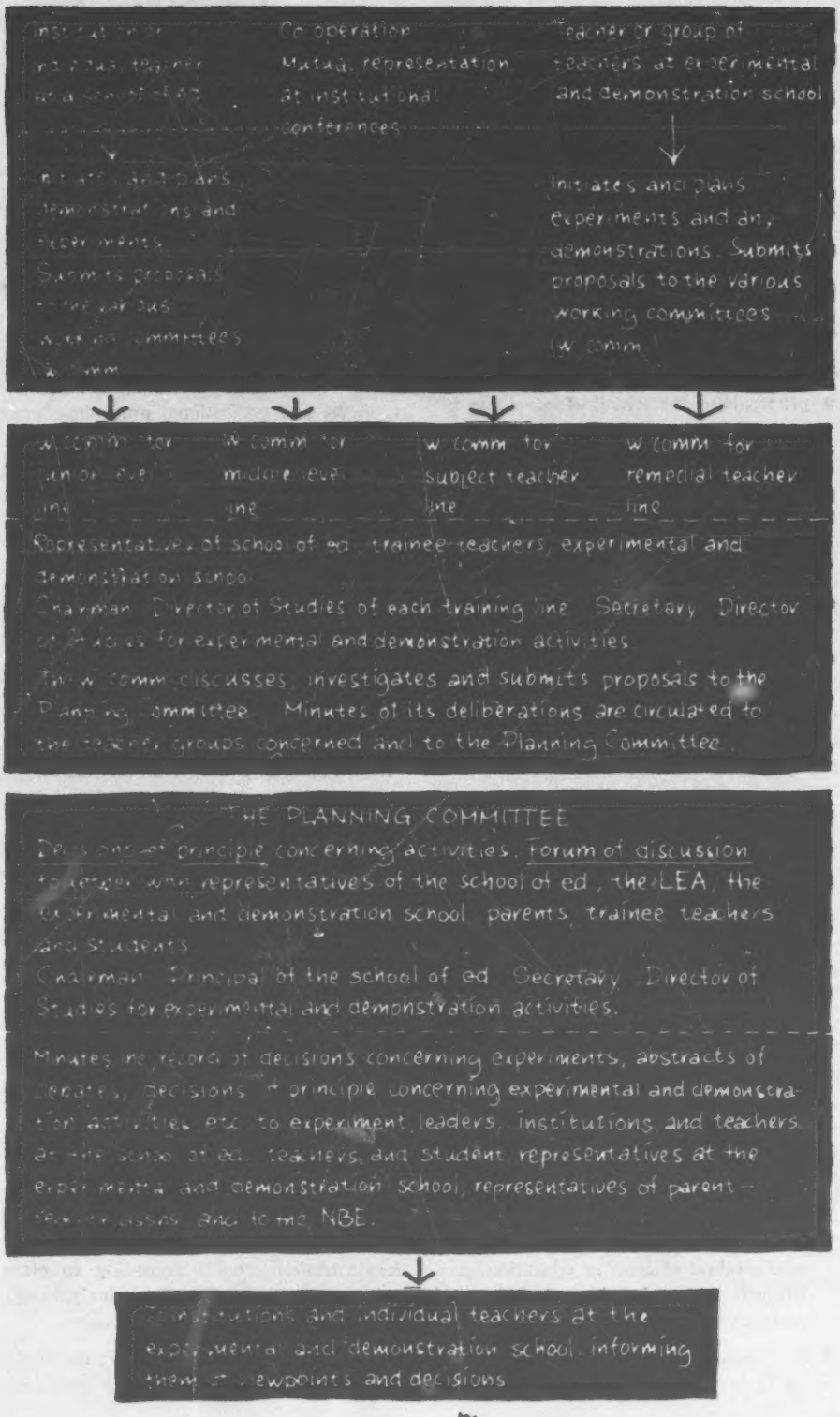
The regional board is a co-operative body representing teacher training establishments of different kinds and county school board in each of six regions. Hitherto the six largest schools of education have served as regional centres, and their in-service training departments have served as regional secretariats.

The purpose of the regional boards is to initiate and promote co-operation between authorities and bodies concerned with educational R&D and with the basic and in-service training of teachers. Among other things, this involves the following tasks:

- the exploration of problems and evaluation results in the regional education system and, on the basis of this exploration, the definition of priorities for new R&D work led by the NBE,

Figure 9 ▶

The organization of experimental and demonstration schools


Co operation
Mutual representation at institutional conferences
Teacher or group of teachers at experimental and demonstration school
Initiates and plans experiments and any demonstrations. Submits proposals to the various working committees (w comm
w comm for junior level line
w comm for middle level line
w comm for subject teacher line
w comm for remedial teacher line
Representatives of school of ed trainee teachers, experimental and demonstration schools
Chairman Director of Studies of each training line Secretary Director of Studies for experimental and demonstration activities
The w comm discusses investigates and submits proposals to the Planning Committee Minutes of its deliberations are circulated to the teachers groups concerned and to the Planning Committee
THE PLANNING COMMITTEE
Decisions of principle concerning activities. Forum of discussion to which representatives of the school of ed, the LEA, the experimental and demonstration school parents, trainee teachers and students
Chairman Principal of the school of ed Secretary Director of Studies for experimental and demonstration activities.
Minutes record decisions concerning experiments, abstracts of leaders, decisions of principle concerning experimental and demonstration activities etc to experiment leaders, institutions and teachers at the school of ed. teachers, and student representatives at the experimental and demonstration school, representatives of parent-teacher assns and to the NBE.
Institutions and individual teachers at the experimental and demonstration school, informing them of viewpoints and decisions

- collaboration with research institutions, experimental educational areas etc. in proposing the composition of reference groups for R&D projects in the region,
- advisory services to research institutions and in connection with project research field experiments,
- inventories of the further training needs of teacher trainers in the region and, on the basis of such inventories, suggestions regarding the content and programmes of regional and local teacher training days,
- proposals to the school of education in-service training department concerning regional in-service training measures for teachers and other school personnel.

The regional board must hold at least one meeting per term. Its members must comprise representatives of the county school board and every teacher training establishment, one representative of the in-service training department of the major school of education and one representative of the institutions of educational research within the region. The regional board must also invite the county branch of the Swedish Association of Local Authorities to appoint a representative.

The department of educational research

A great deal of R&D work is done at the educational research departments of schools of education. Institutions should aim here at a certain degree of specialization in accordance with the decisions of education policy and the educational goals to the realization of which R&D is intended to contribute. Specialization and programme work also proceed—or should also proceed—with the following in mind.

- R&D must influence and elucidate the whole fabric of teacher education, particularly instruction in pedagogics and methods and practical training.
- Activities must be correspondingly geared to in-service teacher training within the in-service training region served by the school of education.
- To the utmost possible extent, R&D must also give shape and content to activities at the experimental and demonstration school run by the school of education and to the participation of trainees and teacher trainers in those activities. The R&D commission always includes responsibility for ensuring that practical use is made of the results obtained, not only in the above mentioned contexts but also, for instance, in the everyday educational debate in the mass media and professional press, in educational publishing and in local experimental activities of various kinds.

The experimental and demonstration school

June 30, 1974 marked the end of the first six-year period in the development of special experimental and demonstration schools affiliated to schools of education in Sweden. This development was a gradual process, both the form and content of activities being initially unknown to all concerned.

The guidelines for experimental and demonstration schools were laid down in 1967 in connection with the resolution for the reform of class teacher and subject teacher training. A start was made on July 1, 1968, and the intention was for experimental and demonstration activities to contribute among other things to the following:

- a concretization of theoretical studies in pedagogics and methods,
- arousal of the trainees' interest in the development of pedagogics and methods,
- the preparation of teaching materials specially tailored for teacher training.

This work was to be jointly undertaken by schools of education and experimental and demonstration schools according to plans drawn up by the former. The principal goals of the work were defined as follows:

- to devise means of improving the structuring of subject matter and enhancing

its appeal to the students even outside the present subject boundaries,

- to devise better means to the individualization of training, so that greater allowance could be made for students' aptitudes and interests,
- to develop various means whereby students could exert greater influence on instruction and on other conditions in school.

The demonstration activities at the Malmö School of Education can be taken as an example of subsequent events. Activities there have mainly comprised the following.

Direct demonstrations (a small group of trainee teachers follows part of a lesson in the students' classroom in the experimental and demonstration school).

"One-way-screen" (OWS) demonstrations, with a larger group of trainee teachers (12—14) following a teaching situation in a room where specially constructed windows provide one-way communication with the classroom. Teachers and students have nicknamed this room the 'Hall of Mirrors'.

CCTV demonstrations, with the trainee teachers encountering recordings of teaching situations, pupil welfare conferences etc. via closed circuit television.

Demonstration activities developed rapidly, despite the timetable and other planning difficulties involved by the integration of demonstrations with instruction in methods and pedagogics. During the first year, 80 demonstrations were given in the Hall of Mirrors, and about 350 were given the following year.

The concretization afforded by the demonstrations in the Hall of Mirrors made a valuable contribution to the teaching of pedagogics at the Malmö School of Education and imparted more realism to the training.

Municipal development work

Local R&D measures are the responsibility of the municipalities. Their contribution is quite indispensable, because development work confined to unilateral communication from the top downwards can give only limited returns. An interchange of ideas and experience is needed between the community and authorities, between theoreticians and practitioners.

The closer one comes to educational reality, the more difficult it becomes to describe that reality in direct organizational and working terms. At municipal (=local) level, development work becomes an approach to work as well as a part of the work itself.

Purposes

Long-term and short-term planning at local level are supposed to serve essentially the same purposes as their central counterparts, viz:

- general planning of the outward organization of the education system, including requirements in the way of personnel and facilities,
- budget planning with reference to costs, available resources and resource utilization,
- development planning,
- evaluation and follow-up.

Development work may comprise local reinforcement measures. These may be organized, for example, for the benefit of low performers, underachievers, socially and emotionally maladjusted students, handicapped students, immigrants—in short, groups and individuals whose schooling is liable to bring meagre rewards or to have positively demoralizing effects.

Local development work may take the form of experiments with new student groupings, changes in the duration of periods and lessons, new teaching materials, new forms of student participation etc. The scope for experimental innovation is virtually unlimited, though innovation must always be prompted by the actual needs of teachers and students.

Briefly, local development work may be said to focus on the following tasks:

- Systematic feedback of results and other observations and assessments, aimed at revealing the strengths and weaknesses of the municipal school system.
- An assessment of the need for local development projects, based on information and reports from school management, teachers, students and parents.
- The planning, conduct and evaluation of development measures at the individual school.
- The transmission to teachers, the school management and the LEA of reports on the general progress of development work.
- Where appropriate, the incorporation in discussion and study day material for teachers of the experience gained from development activities.

Experimental education areas

It is important for the impulses leading to research to come from individual schools and municipalities. This ensures that the

problems investigated have a bearing on practical realities. The NBE therefore supports municipal development work in a variety of ways. Experimental education areas are one such expedient, and a great deal of educational development work has been done in these areas since the mid-1960s.

The experimental education areas are organized at municipal level and are jointly financed by municipal authorities and the NBE. Their activities involve the participation of interested teachers in experiments which are usually connected with everyday school problems as defined in the municipality and its schools or by the NBE on the strength of its observation of developments in the school sector.

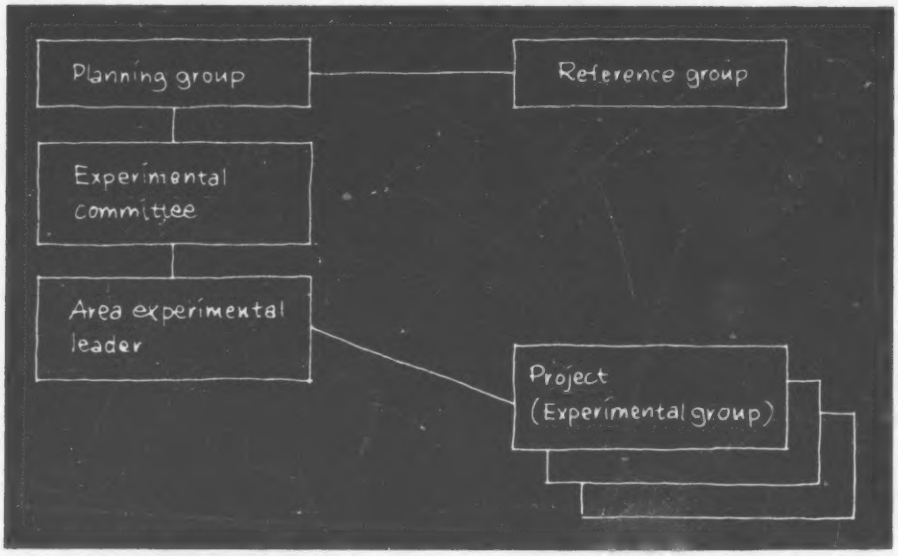
Experimental education areas are a means of promoting developments in the school sector and a bid to further the aims of the school system as described in the curricula. At the same time the activities of the experimental education areas provide valuable in-service training for the teachers taking part in experimental schemes. Therefore two kinds of development are involved: the development of schools/teaching and the development of the teachers themselves.

The ultimate aim of the experimental education areas is to be able to offer students a meaningful environment in which to develop. Another powerful motive for the establishment of these areas is the desire for a decentralization of development work, while a third motive is the desire to encourage a form of experimentation involving the greatest possible number of teachers in the context of their normal duties. In this way, schools themselves are enabled to look for solutions to their problems as part of their effort to fulfill the aims of the curricula.

Experimental education areas exist today in Gothenburg, Eskilstuna, Gävle-Sandviken, Västerås och Växjö. These five municipalities are concentrating their projects on various main themes.

- Eskilstuna—children in special need of support and stimulus.
- Gothenburg—basic communicative skills.

Figure 10



The organization of an experimental education area

- Gävle-Sandviken—adult education.
- Västerås—co-operation between home, school and the community.
- Växjö—mathematics, social training at junior level.

The justification for this specialization is that area managements have less difficulty in observing and co-ordinating coherent activities. Experiments are made more efficient and they have more impact both at municipal level and in the school system as a whole.

A planning group or a board is usually put in charge of the activities of an experimental education area. Under this group comes an executive group, the experimental committee, which includes the experimental leaders in the area. They in turn keep in touch with the various projects in progress within the experimental education area. Most areas have gradually evolved a reference group as well.

The planning group takes charge of activities and of their general design, but final responsibility usually rests with the LEA. The group is the managing board of the experimental education area and decides matters concerning the direction of activities, the allocation of available funds and the research programme to be followed. Planning groups include representatives of different interests, which helps to establish the experimental education area on a wide communal footing. In a community having a school of education, a university and a county school board, the pattern of representation may be as follows:

- the NBE
- the LEA
- the school administration
- the school of education
- the county school board
- the educational research institution of the university.

In a municipality which is not a county town and which has neither university nor school of education, a planning group may comprise representatives of the following:

- parent-teacher association
- teachers' associations
- the NBE
- the LEA
- the school administration
- the municipal social welfare authority.

Experimental education areas are financed by grants from the NBE and the municipality concerned, on equal terms. In some cases, however, the NBE has made extra grants towards projects judged to be of particular interest, either with a special end in view or with reference to various development projects.

The initiative leading to the establishment of new experimental education areas is taken centrally, but considerable scope is provided for the free design of experimental programmes to suit local interests and circumstances.

There are many ways of initiating experiments within the experimental education areas. One invariably finds that the utmost efforts are made to relate experiments to the locality. Accordingly, those in charge of experimental education areas are anxious to receive as many suggestions as possible regarding new projects from active teachers, thus ensuring that projects are relevant to everyday school work. Here are some of the ways in which experiments can come about.

Proposals are prompted by the NBE via lists of desirable projects. The experimental management presents these proposals in the form of an invitation, and teachers/schools respond according to their interests. Proposals from the NBE usually originate from educational advisers, who then elaborate their proposals in consultation with the experimental education areas.

Alternatively, a municipality may invite all teachers and certain other school personnel categories to submit descriptions of problems which could provide a starting point for experiments, or else to submit direct suggestions regarding possible projects.

The proposals received are considered by the experimental committee/management

The Västerås experimental education area

CO-OPERATION BETWEEN HOME, SCHOOL AND THE COMMUNITY

Purpose: to design and test models aimed at improving school contacts with the outside world in a number of spheres.

To design and test models aimed at finding opportunities for the joint utilization of educational and communal resources in a number of spheres.

The Gothenburg experimental education area

DEVELOPMENTAL READING AT MIDDLE AND SENIOR LEVELS

Purpose: to induce students to read and in doing so to find reading both enjoyable and meaningful.

To encourage students to read good quality literature for children and young persons.

To describe the student's interest in and attitude to reading and to describe the range of their reading.

To describe the organization and methods used.

To list the literature available to the students and the literature they have read.

The Eskilstuna experimental education area

DEVELOPMENT WORK IN CONNECTION WITH IMMIGRANT EDUCATION

Purpose: to observe the development of bilingualism among junior level students during work in preparatory classes, the aim being to find suitable general methods.

To find suitable forms for the teaching of English to immigrant children.

To design auxiliary measures on behalf of immigrant children with special needs—needs which are not exclusively bound up with the language factor.

To train teachers of Swedish as a foreign language.

and passed on to the planning group.

The NBE teaching departments, to which the experimental education areas are subordinate, include a liaison group headed by the Head of Department. This group includes Heads of Division, a Head of Section in charge of finance, and educational advisers liaising with their various experimental areas.

The task of the liaison group is to support and encourage the work of the experimental areas. This means following the progress of the work as well as helping with its inauguration and final summing up.

The NBE greatly appreciates the work done by the experimental education areas and has a high opinion of their favourable effects—both at local level and in relation to the central work of the NBE itself.

Notice has been drawn to the way in which results and ideas from the experimental education areas are utilized in budget request work. In this way results are communicated not only to curricular work but also to subsequent R&D.

At the instance of the NBE Research Advisory Committee, a thorough evaluation of the activities of the experimental education areas is being undertaken over the next few years.

Information

Prompt and effective information on R&D is one of the permanent tasks of the NBE. The standing instructions of the NBE have the following to say on this point:

"It is the particular duty of the NBE to ensure that the content and methods of (school education) *are constantly renewed, developed and improved in response to the progress of research and to developments in public and private administration, in commerce and industry, in the labour market and in other sectors of society. Consideration is also to be given in these respects to developments in other countries.*

"...to ensure that knowledge concerning educational development work is rapidly disseminated among authorities and others who are responsible for (educational) *activities, and also among those who are otherwise affected by the said activities."*

The NBE finances about 70 per cent of all educational R&D in Sweden. Expenditure for the fiscal year 1974/75 totalled Skr 26.6m. Of this, Skr 642,000 was spent on publicizing the results of R&D.

Since 1969 the staff of Division L 3 has included an officer specially charged with the management of information questions.

Apart from covering salary costs, information finance also covers the cost of producing and distributing Newsletters in Swedish and English, summaries of current R&D activities and many other things besides.

Essentially the NBE seeks to convey R&D information to all members of the educational community—teachers, teacher trainers, school specialists such as school management and researchers, and interested members of the general public.

The teaching profession, numbering about 100,000 members, is regarded as the most important target group. Another important group is made up of teacher trainers, who although only about two thousand in number clearly occupy a key position; schools of education and other teacher training establishments are gateways to the utilization of R&D results.

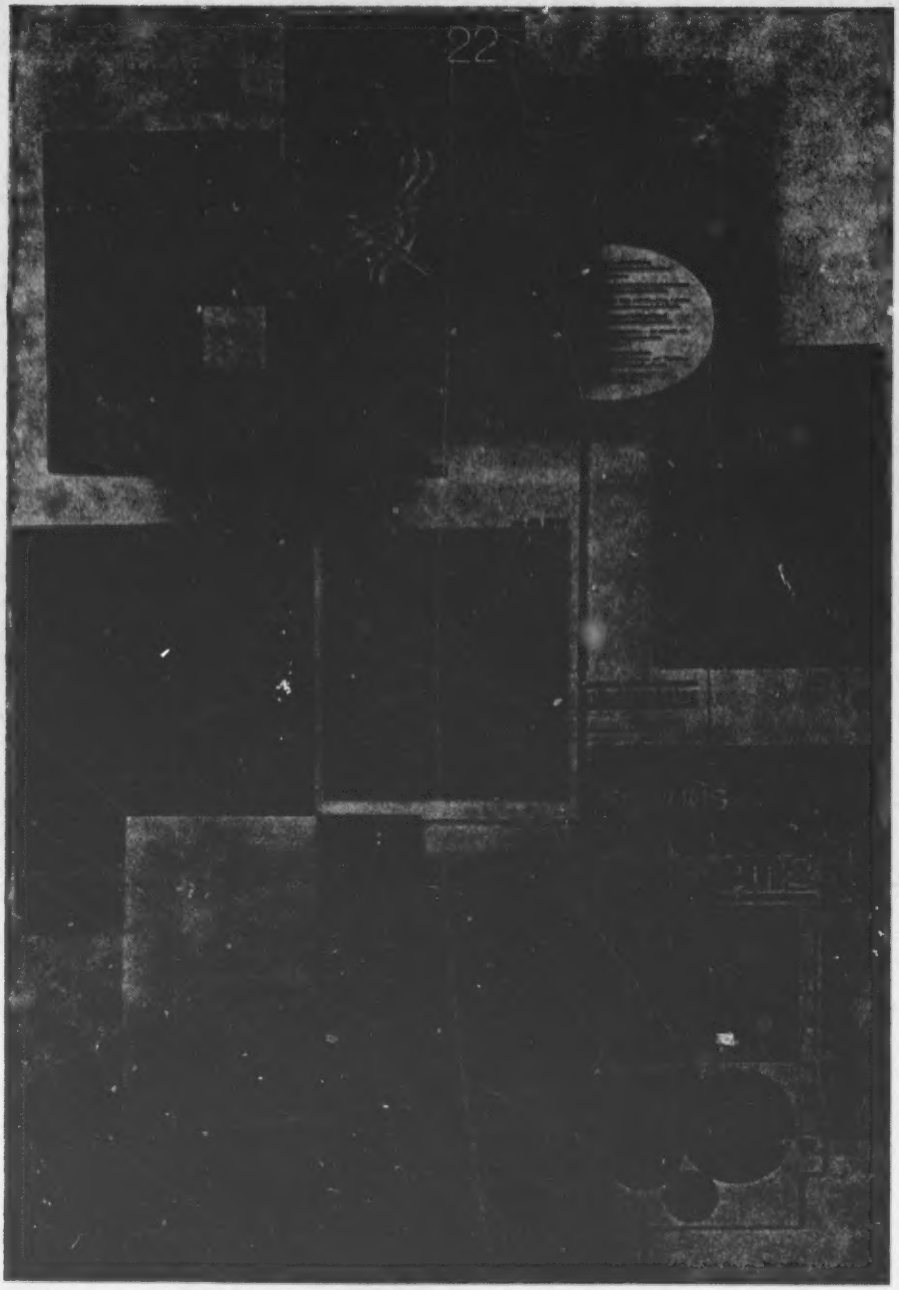
Curricula and curicular supplements are the most important types of information material produced by the NBE. Another, inadequately utilized, source of information is the NBE's annual budget estimates, a special section of which is devoted to R&D. A simplified summary of budget requests (the preamble of the document in question) is always published in a special issue of *"Current News from the Board of Education"*. The NBE also publishes a journal called *"Pedagogiska Meddelanden"* which sometimes includes summaries of R&D reports.

Development information is published by other working units as well as the NBE Information Section. Their publications cover such special topics as specific problems of vocational education, study and vocational guidance, school health services, special instruction, standardized achievement tests etc.

The results of curricular work and teaching material development by the NBE are also published in stencilled and printed reports. Many of these reports are distributed to all schools and teachers concerned.

All the institutions engaged by the NBE for R&D work publish series of reports presenting their research findings. These reports are distributed to other behavioural science institutions at universities and schools of education, to individual researchers, to central and—less widely—to local

Figure 11



Samples of the educational R & D-publications, entirely or partially subsidized by the NBE

education authorities, to public libraries, to newspapers and to professional journals.

A "*School Research Newsletter*" has been published in Swedish and English since 1966 by the R&D Division of the NBE, Division L 3. Other sources of information include pocket books summarizing research findings, syntheses of current and concluded educational research, and a Swedish journal of pedagogics, "*Forskning om utbildning*" (Educational research), which came into being a year or two ago and is published by the NBE in association with the National Board of Universities and Colleges and the Swedish Council for Social Science Research. Finally there is the journal "*Skolhus*", which covers development work in the school environment and school buildings sector.

Taken together, the following reports and summaries provide a detailed picture of R&D work by the NBE.

Information om skolforskning

A bulletin presenting NBE projects at universities and schools of education. Articles are written by the leaders of the projects. The bulletin appears between 20 and 30 times a year. One number every year is devoted to a concise list of project plans for the coming fiscal year. The bulletin is distributed to about 1,500 subscribers, ranging from county school boards to public libraries and interested teachers. (English version: "*School Research Newsletter*").

Svensk utbildningsforskning

Published annually, this journal lists institutionally based R&D projects connected with schools and education. It also covers projects financed by the National Board of Universities and Colleges, the Swedish Council for Social Science Research, the Bank of Sweden Tercentenary Fund and other bodies. This journal is circulated to about 1,000 readers, which is roughly the same number as for the Newsletter. (English version: "*Educational Research in Sweden*").

Pedagogiskt utvecklingsarbete inom skolöverstyrelsen

Published annually, this journal is a concise account of internal projects at the NBE. It is sent to the same subscribers as Educational Research in Sweden.

Utbildningsforskning

A series of reports presenting the final results of various NBE projects. The series is published by Liber Läromedel/Utbildningsförlaget in about ten issues every year. The annual subscription rate is about Skr 140. This journal is a bid to reach a wider audience and encourage a debate on the results of educational research. Part of each edition is sent free of charge to mass media, teachers' and students' associations, teacher training establishments and research institutions etc.

Forskning om Utbildning

This journal was started in 1974 for the analysis and discussion of research throughout the education sector. It is published by LiberLäromedel/Utbildningsförlaget with financial support from the NBE, the National Board of Universities and Colleges and the Swedish Council for Social Science Research. Four issues are published annually. Part of each edition is distributed free of charge, mainly to the same persons, institutions etc. as receive "*Utbildningsforskning*".

Annual report from the Research Advisory Committee

A report from the Research Advisory Committee is published every year in a special issue of "Current News from the Board of Education". This report deals with evaluation questions concerning, for example, Swedish, foreign languages, religious knowledge, certain interdisciplinary questions and standardized achievement tests in Swedish. The report also includes a list of research reports on evaluation questions.

Effects of commissioned research

Effects of commissioned research
by Professor Karl-Georg Ahlström and Ass. Prof. Erik Wallin, Department of Educational Research, Uppsala School of Education.

The nature of research

The aim of scientific research is to make life more comprehensible. Its task is to collect and generate knowledge. This is done in a process of collaboration, with each individual endeavouring to contribute his share towards the building of the edifice. In order for this to be possible, every member of the international research community must pay heed to his colleagues' findings, respect certain common working rules and submit to appraisal by his colleagues. Co-operation, then, is a prerequisite of scientific research.

When a researcher evaluates a scientific result, his most important criterion is whether the state of knowledge has been advanced or not. Other possible effects, such as the extent to which a finding can immediately influence the development of affluence and welfare, are of secondary importance to a scientific assessment. We take it for granted that knowledge will broaden our opportunities of finding ways of controlling and changing our living conditions and of predicting the consequences of measures which we are contemplating. We expect to derive these opportunities from the total corpus of knowledge, seldom from isolated results. The effects of science upon social development should therefore be assessed in a long-term perspective and not with reference to conditions applying at a given point in time.

An aim of this kind demands detachment on the part of the researcher from current everyday problems clamouring for a solution. When, for example, a social scientist analyses an up-to-the-minute event, he does so in the hope of being able to relate it to a wider context, fit it into a pattern or demonstrate a universal law. He is unlikely to analyse it primarily with the intention of demonstrating a specific abuse and devising measures to rectify that abuse. But of course his analysis will also lead to criticism and, possibly, to a discussion of solutions. This is not to say that he stands or even should stand to one side of contemporary society. On the contrary, involvement is a prerequisite of his work, but he must also possess the will and the capacity to view problems in a wider perspective, to elicit the universal from the particular.

The work of the researcher is governed by a model rooted in a long tradition of research, a system of norms dictating which problems are urgent and interesting, how they are to be tackled and how the results are to be interpreted. It is not until the results overwhelmingly deviate from what the prevailing research tradition would lead one to expect, not until they can no longer be dismissed as arising out of errors in the investigation procedure, that the research tradition is abandoned in favour of a new attitude. The new approach not only facilitates an adequate interpretation of previously bewildering results, it also provides indications of completely new problems and, possibly, new methods of investigation.

The nature of science, and the orientation it implies towards theoretical problems and long-term goals, are bound to set up tensions between the scientific community and the society of which that community forms part and which guarantees its exist-

ence through services and financial grants. Society expects research to be devoted to relevant problems, and it expects research findings to be promptly applied to the benefit of the general public. But researchers also have to pay heed to scientific criteria. Consequently this tension will always be with us.

The tension between science and society is perceptible in all branches of science, educational research included. Economic committment in the field of educational R&D has attained a relatively high level. This of course is a manifestation of great expectations concerning the effects of R&D on the development of the education system. The higher the expectations, the greater the disappointment which is liable to result from their non-fulfilment. We shall now proceed to consider some of the expectations which can be placed in educational research, and some of those which cannot. In doing so, we hope to be able to present certain viewpoints concerning the R&D work of the NBE.

A breathing space for revolutionaries

In the introductory chapter of this book, the research activity financed by the NBE is characterized as commissioned research. This implies, in the present context, that a research assignment must be compatible with certain problems areas to which the NBE has given priority. Researchers are expected to provide the NBE with planning and decision-making documentation in the form of concepts, theories and facts. On the other hand the NBE does not concern itself with the manner in which the problems selected are to be tackled and the resultant findings interpreted.

One can hardly object to this type of control. It is surely up to the NBE to decide on which problems it requires the assistance of researchers. It is surely more rational for the NBE to declare the perceived deficiencies of its knowledge and to pay for having those deficiencies remedied, instead of doling out grants haphazardly to researchers in the faint hope that knowledge will be available where it is eventually found to be needed? This argument may seem to be a truism, but it is in fact open to objection.

On what grounds does the NBE give priority to certain problem areas? Priority implies that certain shortcomings in the school sector have become so prominent that action is called for. This focus on certain phenomena manifests a certain view of society, school and the individual—a basic view or a policy. Given a different policy, the focus of attention would be on different phenomena.

The NBE's basic view is shared, partly or entirely, by many members of the community. It represents social ideals and 'common sense' views. Many social scientists and educationalists have made it their own. To these researchers, therefore, the problem areas which have been given priority are both relevant and inviting. To other researchers, involvement would be a betray of their intellectual and moral convictions. One of the most urgent tasks of research must be critical analysis, i.e. simultaneously to conquer ground from common sense and transform the basic view. This must also be an urgent concern to the NBE, for it is the transformation of fundamentals that generates new goals, programmes and methods for schools. Thus the task of the NBE's R&D cannot be confined to attempting to contribute towards the realization of the existing curriculum; it must also include a challange of the curriculum and efforts to change it.

In other words, control implies that assignments are mainly given to researchers who agree with the basic view of the NBE (and of the Government and Riksdag) and who occupy themselves with looking for methods to realize the intentions of the existing curriculum or with evaluating various approaches to that end. In the long run this research also leads to a transformation of the basic view, but the resultant changes are gradual and slow. Research which is critical of the NBE's basic view is not supported, it is very soon checked. This is certainly not done intentionally—there have been cases of support being awarded to critical research. The main impediment lies in the fact that critical research cannot be

integrated with the top priority problem areas, and also in the fact that there are so few bodies apart from the NBE which can provide financial resources for research of this kind.

Once a grant has been awarded, the NBE is exemplary in the degree of liberty it gives to the work of a project, so that it is possible for a researcher with a different basic view to be attached to a project. But this possibility is purely theoretical, for researchers with different fundamental convictions concerning research either try to 'convert' each other or else behave antagonistically towards each other. Thus the prerequisites of internal criticism of a project are lacking.

Priorities have to be determined, but one wonders whether scope should not also be provided for critical research—a breathing space for revolutionaries—aimed at scrutinizing the NBE's basic view and delivering documentation for long-term planning. In a word, can we afford to do without such a breathing space?

For the sake of clarity, we would like to emphasize what has already been hinted, namely that educational research on the conditions dictated by the official basic view must also be worthy of the designation critical research, aimed at querying, scrutinizing and analysing the basic view. This implies research in quest of the fundamental values and the fundamental view of humanity and reality on which the basic view is founded and on which school development proceeds. It also implies research that queries its own foundations and conditions.

The dilemma of commissioned research

The above argument is a *confessio* to the effect that research which is critical of the NBE's basic view is useful. But most of the R&D financed by the NBE has a different aim. Its purpose is to convert the plans, suggestions and recommendations of curricula and survey reports and Government Commissions into concrete programmes of action, to explore and analyse the practical functioning of these programmes and to ascertain their effects. Information from this R&D work is transmitted to the NBE which then has reason to reconsider its decisions and acquires documentation for the compilation of new recommendations or instructions or the modification of earlier ones. Surely this is a useful type of activity? Does it not simplify the work of the decision makers?

We hope and believe that this activity is useful. But a debate sometimes arises concerning the practical usefulness of commissioned research. Sometimes it is queried altogether. Sometimes the allegation is made that commissioned research is valuable to the decision makers but not in the manner generally supposed. One argument used in the debate, of course, is the question as to what would happen if there were no commissioned research at all. It is generally alleged that the information at the disposal of the decision makers would then be either irrelevant or unreliable. It would be irrelevant because it dealt with matters unconnected with the decisions that school policy makers and administrators had to make. There is of course nothing to say that researchers would study the very problems that interested the decision makers at a given instant or—even if there were to be such a coincidence of interests—that their investigations and reports would be complete in time for the decision-making process.

In a situation of this kind, the decision makers would be dependent for relevant information upon the reports coming in from the school community. Reports of this kind naturally describe the way in which plans have been translated into action programmes and the way in which programmes have been implemented and are working out in practice. The information, then, is relevant, but it is generally anecdotal, based on subjective impressions and of little analytical value.

Commissioned research, according to its apologists, is a very different matter indeed. It deals with relevant issues. Facts are systematically collected and scientific method ensures that the information supplied will

be truly authoritative. But relevance and scientific stringency do not necessarily lead to information which is more authoritative to the decision makers.

There are two reasons why this need not necessarily be so. The main focus of attention is generally on the implications of the action programmes for students. It may be useful to be able to see how schools are implementing a certain programme of action and how this is affecting the students. Often, however, programmes are so complex that effect measurements have contradictory results or results conflicting with common sense.

Another possible reason for denying the authority of the results of commissioned research is that a reported research finding seldom represents a complete entity. Often it is not so much a final solution as a new way of stating the problem, or the statement of a new problem. It may therfore be the prelude to a dispute over methods in which its reliability is queried.

The nature of action programmes

Most educational action programmes are presumed to have a series of effects. Often there are many goals to be achieved simultaneously, and these goals are sometimes contradictory.

The achievement of some goals can be established by measurements, while in the case of other goals this is impossible. It is therefore seldom that effect measurements have clear and unambiguous results. Insofar as results conflict with common sense, it is often possible to refer to conceivable but unmeasured or currently unmeasurable effects. In circumstances of this kind, research findings do not exactly make things easier for the decision maker.

The problems which action programmes are intended to eliminate or alleviate are quite often incorrectly diagnosed, in which case the underlying assumptions of the programmes are also incorrect. The currently popular idea of an early school start as a means of reducing inequalities of school achievement is probably founded on incorrect assumptions concerning the mechanism which gives rise to those inequalities. If the results deviate from what was expected, it is an open question whether the decision makers will regard them as authoritative and, accordingly, will be prepared to reject their assumptions, or whether they prefer to stick to their assumptions on the grounds that the investigation was affected by errors of method.

The third property of an action programme is that, generally, it is only one of several sources of influence. Its effects, therefore, are never dramatic. In view of the work and time which have to be put into the development of such a programme, a demonstrable but slight effect can generate disappointment on the part of decision makers and other interested parties, who are then liable to lose faith in the researchers who plotted the effects or in the methods they used.

The character of applied research

The result of an investigation is very much dependent on the methods employed. Nils Erik Svensson's investigation on behalf of the 1957 School Commission concerning the effects of school differentiation led him to conclude that students in ability selected classes obtained better results in achievement tests than students in non-selected classes to begin with but that these differences disappeared after a year or so. The advanced methods and scientific stringency of this study soon aroused well-deserved international attention, but both the methods and the findings were called into question before long. When Dahllöf analysed Svensson's data he was able to use particulars which he had collected in another connection and which enabled him to show among other things that there were clear differences of teaching content between the two school environments and that Svensson's measuring instruments did justice to teaching content in the undifferentiated classes but not to teaching content in the

differentiated classes. Thus the results of Dahllöf's findings suggested that the differentiating environments had effects clean contrary to those which Svensson believed himself to have established.

This is but one of many instances of researchers arriving at divergent conclusions because they intepret the problems differently, select different approaches and apply different methods. It would be odd, therefore, if school policy makers and administrators felt less uncertain about a decision because the documentation for it included findings from commissioned research. If the researchers themselves disagree concerning the interpretation of a finding or the method which is most adequate, they can hardly expect the recipients of their findings to believe that research gives them firmer ground to stand on.

Why commissioned research?

Our argument has led to what may seem to be a paradox, for it can be summarized in these two conclusions:

- The researcher who accepts a research commission often tackles such problems that there is every probability of the decision makers being disappointed by his results.
- Decision makers have every reason for being sceptical of the findings presented by the researcher at the end of his assignment. Research seldom simplifies decision making. It tends more often to have the opposite effect.

Then why does commissioned research exist in the first place? Is it a feint designed to give status and weight to the decisions taken? The answers to these questions are contained in the preceding section. It is the aggregate scientific effort, seldom individual findings, that is of practical importance. The aim of science is to furnish us with a conceptual framework in which we can range different phenomena and structure and interpret reality. The function of commissioned research is not only to analyse and establish the effects of action programmes but perhaps above all to elucidate and discuss the assumptions underlying those programmes and the goals at which they are aimed. Its task is to penetrate the basic view from which the programmes are derived. Thus it is not only the direct outcome of the investigations—the answer to the question whether the programmes have had the intended effect or not—that is of value. There is also a value in the concepts in which phenomena are captured, in the theory which describes the relationships between the phenomena in question, in the methods whereby the problems are tackled and in the new problems and points of inquiry which are generated by the investigation.

Thus the most important purpose of commissioned research is to produce a debate with and among the decision makers. Commissioned research provides that debate with fresh arguments and questions, and it develops incomplete argument and lends structure to the debate. Its purpose is not to supply ready made solutions.

It is not certain that research can—or even should—reduce conflicts and uncertainties, but it can increase awareness of the existence and nature of conflicts. It can make us realize that there is cause for uncertainty on the threshold of a decision, and it can show us the reasons for that uncertainty. It is therefore important for priority to be given to certain fields of research, because it is within these fields that the conflicts and uncertainties of the decision makers are to be found. Research is also one of the sources from which decision makers obtain the documentation enabling them to reconsider their priorities and shift the focus of their interests.

Local viewpoints on research and development

by Bo Holmberg, Assistant Chief Education Officer, Växjö

The school community is often lacking in knowledge of the implications of development work and the manner in which it is conducted. Quite often, for example, when suggestions are solicited regarding in-service training activities, information is called for on the subject of development work. The present publication, which according to its preface is designed to cater for the need for a concise account of the general direction and forms of development work, therefore represents a highly laudable initiative. Above all, however, a desire is expressed at local level for surveys of current and planned work and of accomplished and anticipated results. There is also a desire for closer contact with the practitioners of development work than is afforded by spoken and printed information. I take this to mean that there is also a need for opportunities of discussing the form sand direction of development work, and I therefore venture to assume that present day development work is not very firmly rooted at local level. But is this primarily due to a lack of information?

The assertion made in the preface that the results of R&D work are widely distributed through the medium of curricula, manuals, teaching materials and reports of various kinds is open to question. There is certainly an abundance of information, none of it very hard to come by. And yet one often encounters uncertainty as to what is the result of attested experience, research or systematic investigation or development and what is not. The feeling that many of the innovations introduced in schools are desk products and the result of random impulses and half thoughts is admittedly receding rapidly, but it is still very widespread, not least on the subject of the products of curricular and teaching material development work.

Then does this account of the general direction and forms of development work and of the R&D process correspond to the needs of the school community? To answer this question, we must begin by considering the information requirements of a number of local target groups.

Local information needs

My largest target group comprises the majority of those whose work involves the utilization of the results of development work. Where this target group is concerned, general information on development work can do more than raise interest in development work and its results. It may also help to create a better understanding of the difficulties associated above all with working procedure. It happens all too often, for instance, that the educational community demands research and experimentation in the belief that a prompt and unambiguous solution can be found in this way to current problems. But does this information get through to teachers generally without special measures, for instance in the form of study day reviews?

Another interest group comprises those who at various levels have to exercise educational leadership, initiate improvements and promote experiments and in-service

training etc. In many cases the transmission of the present publication to this group would not only arouse interest but would supply knowledge capable of benefiting and supporting them in their everyday work.

A third group comprises the teachers and school managers who are already taking part in development work in the school sector (be it centrally, regionally or locally administered), either as part of or in addition to their main duties. This is perhaps the group which at local level has been in greatest need of the general information supplied in this account. This group has special reasons for being interested in the way in which projects are initiated and organized and, above all, in the working procedure applied, because the project approach is being more and more widely adopted at local level for investigation work, for the compilation of action programmes and so on. Quite often, therefore, local efforts can be compared with development work in terms of both methods and results.

Should development work be divorced from research?

The link-up between research and development is consideed to be particularly advanced in the Swedish school sector. It is not for me to judge the accuracy of this belief, but assuming that it is correct, is this necessarily an advantage? Does it not also imply a danger of more resources being used than are really necessary? Does it not limit the ability of the school community to participate and to contribute locally towards the development of the school system?

In many connections light has been shed not only on the interconnection but also on the demarcation of research and development. At local level, attention should also be paid to the difficulty of demarcating development work from what is not development work. I have already given one reason for this, namely that the systematic approach typical of all development work is spreading more and more at local level to work formerly outside the sector referred to as educational development. If more attention is drawn to these new sectors, and if methods of information retrieval and analysis are developed, as well as systematic work procedues etc., more and more school practitioners will be enabled to participate in the work of school development.

The following example will illustrate what I mean. A working committee is set up to draft local introductory programme for a school grade. Is this development work? As I see it, there is no straight answer to this question, because the answer depends not so much on the nature of the task as on the way in which it is tackled.

Are there enough resources?

Opinions vary in the school community concerning the need for educational research and development. Some people find the returns too meagre in relation to the input-Others—the majority to my belief—would like to see heavier inputs. One often hears it said that the introduction of a new model should be deferred until a better account can be given of its results and effects. It is therefore important to pay attention to the difficulties of solving every problem by means of research and development, and it has to be realized that efforts in this development, and it has to be realized that efforts in this quarter demand not only financial resources but, above all perhaps, time. Perhaps too our resources of personnel will not be sufficient for a heavy increase of R&D efforts, unless additional, new groups of participants can be recruited?

The scope of the NBE R&D programme is impressive, so too is its apportionment between different sectors and needs. But one cannot help suspecting that in reality these programmes are less comprehensive than their headings lead one to suppose. Programme design has no doubt been influenced, not only by needs but also by efforts to attain an equitable distribution between different sectors.

The ability of the school community to influence the centre of decision making

The proportion of committee research in the total research programme has diminished, and commissioned research has taken its place. The main difference is surely that decisions concerning the research tasks to be financed are now taken elsewhere. From the point of view of the school community, emphasis needs to be placed on the desirability of influencing the shaping of the programme. Has the increasing proportion of commissioned research strengthened or weakened the influence thus wielded by the school community?

What attention is given to the question of the ability of the school community, not only to suggest areas and tasks for development work but to have a share in determining R&D priorities? I take it for granted that the technical facilities for such influence exist. But are these facilities realistic? If not, how is the final determination of the programme affected by the inventory of tasks, the synthesis of planning documentation, the drafting of decisions and the final business of decision making being concentrated to such a great extent to the same people? The aforesaid is doubtless applicable to development work at all levels. Efforts to select the most urgent problem areas, to assess the prospects of achieving results, to ensure completion and feasibility, to avoid risks etc. often lead to extensive, protracted and expensive work before even a decision has been taken on the allocation of funds. There is, accordingly, an urgent need for alternative models facilitating rapid and widespread distribution of assignments, and also for a limitation of the purely administrative measures at managerial level.

Few would deny that goals have become the focal point of educational development work in recent years. This is partly to be seen as a natural consequence of previously decided reforms in the school sector. But the great predominance that has been acquired by goals stated in the curricula can also be regarded as a symptom of powerful central control of R&D efforts. It is hard to avoid the assumption that a locally compiled development programme would, for example, contain more projects emphasizing resource utilization, personnel questions and working conditions. Would the balance between the dual purpose of R&D of showing ways to the fulfilment of predefined objectives and of querying the established school system have been less lopsided if curricular design, curricular follow-up and school evaluation had not been entrusted to the authority substantially controlling the direction and design of development work?

The NBE detour

I have just pleaded for the school community to be given greater opportunities of influencing the content of educational development—as regards both commissioned research and pure development work. To my mind the quickest way to this end is to increase the contacts between those who initiate and shape programmes and the sector they intend to serve. There is a need for direct contact between research institutions and the school community instead of the present scheme of indirect contact via the NBE. And groups with development assignments must be given the opportunity in the course of their work of obtaining the viewpoints of the school community—instead of having to wait for comments on their final proposals, as is so often the practice nowadays. Why should not greater efforts be made to elicit the reactions of the school community at the problem description stage and during the framing of instructional models?

As I see it, there is a still more urgent need for development work to be more firmly rooted at local level by the more widespread recruitment of fieldworkers for project purposes. The appropriateness of the large proportion of internal NBE projects is therefore highly questionable. The fact that these projects hitherto have been faster and cheaper than external projects is presumably due to their having been less geared to research.

The greater opportunities of direct contact with research institutions and teacher training which would result from a redeployment of activities are a powerful argument in favour of the decentralization of internal NBE projects. A still more important consideration, however, must be the direct contacts with the school community which this would facilitate. It is hard to see how comprehensive development work can proceed without members of the school community being given the opportunity of participating directly. Direct participation of this kind is a stimulus to educational debate, a source of greater involvement in the work and in itself a form of in-service training. The NBE's efforts to increase the number of delegated projects are therefore well-advised. But it is important not to stop halfway, e.g. at university institutions and in-service training departments. The expertise at the disposal of these bodies is certainly necessary, particularly at project management level. Often it represents what the fieldworker lacks, namely a general perspective and a certain knowledge of the way in which development work can be conducted. But to reserve all project work for this group would not only be a waste of resources, it would fail to solve the problem of transmitting the results of development work to the everyday school context.

Greater utilization of resources

Development work, the appraisal of the same, the issue of instructions on the strength of development work and the evaluation of the activities to which development work gives rise—today all these things are to a great extent confined to the central enforcement authority. The same persons take part not only in the majority of the above mentioned tasks but also in the description of the process and in the dissemination of its results. But the value of R&D efforts stands or falls by the distribution that can be attained by their results. Could one wish for a better guarantee of higher result utilization than an increase in the number of persons taking part in school development work? This idea is far from new. But for many reasons the prospects of its being put into practice appear to be more hopeful today than they have been for a long time.

This publication starts with a survey of the structure and direction of the Swedish educational system. Particular emphasis is laid on the different programmes of adult education. An ambitious and many-sided education system can only develop efficiently if it is backed up by educational research.

In fact many reforms of the Swedish school system during the past few decades have been preceded or supported by educational research and development. The NBE has for more than ten years now been conducting systematically organized research and development activities. The findings and results accruing from these activities are widely distributed through the medium of curricula, manuals, teaching materials and reports.

A broad general account is here given of the direction taken by research and development work and of the research and development process itself:

- how is project work financed?
- how is project work organized?
- how are results communicated to various interested parties?

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